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MEDICAL AND SURGICAL

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Edited by { S. M. BEMISS, M. D.
W. H. WATKINS, M. D.
G. K. PRATT, M. D.

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Paulum sepultae distat inertiae celata virtus.—HORACE.

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NEW ORLEANS

MEDICAL AND SURGICAL JOURNAL.

JULY, 1877.

ORIGINAL COMMUNICATIONS.

OCCLUSION AND DILATATION OF LYMPH CHANNELS.

BY SAMUEL C. BUSEY, M.D., WASHINGTON, D. C.,

Professor of the Theory and Practice of Medicine, Medical Department of the University of Georgetown; one of the Physicians to the Children's Hospital; Physician to the Louise Home, etc., etc.

Continued from March No.

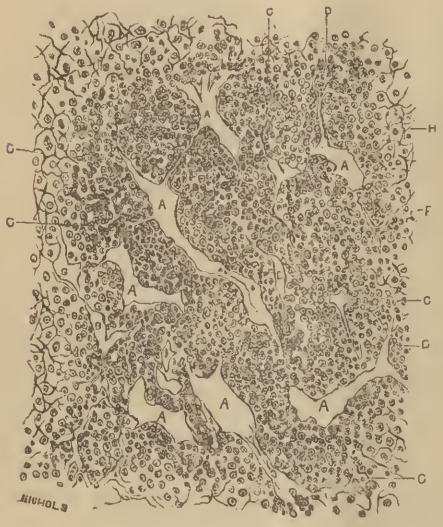
CHAPTER II—continued.

In the summary of the causes of chylous ascites, I drew attention only to the coexisting morbid conditions present in the respective cases. In this connection I must recur to the case of Quincke (43), in order to introduce the case of chylangioma cavernosum, in which chyle retention in the mesenteric lymphatics was occasioned by a very different pathological condition of the mesentery. In Quincke's case, the stasis of chyle in the smaller vessels of the mesentery which led to such extensive capillary extravasations into the intestinal walls and peritoneal cavity, was occasioned by the closure or compression of the lacteals in consequence of "inflammatory thickening of both folds of the mesentery and transformation of the interposed adipose tissue into tense connective tissue, and adhesion of the surfaces of the numerous folds of the mesentery." In Weichselbaum's case (50) no extravasation or effusion took place, but the mesentery was transformed into a cavernous structure, the spaces of which were

filled with chyle. In Quincke's case the inflammatory process was characterized by the transformation of the adipose into connective tissue; in the latter case the prec̈xisting lipomatous degeneration of the mesentery was interspersed with numerous cavernous spaces, which were either dilated chyle vessels or were in direct communication with the chyle capillaries.

Case 50. "Chylangioma cavernosum.* In a man æt. 80, who died of scurvy and pneumonia, between the folds of the fatty mesentery of the upper ileum was a tumor of more than dessert-plate size and 3 to 4 ctms. thickness, which externally looked like a lipoma, not, however, presenting a distinct boundary towards the surrounding fat tissue of the mesentery; but upon incision into the tumor a purely white, milk-like fluid exuded." (See fig. 22.)

[Fig. 22.]



"Section through the tissue of a follicle-like round cell accumulation: a, broader, b, narrower caverns; c, pointed processes of the caverns; d, processes which appear to pass into surrounding intercellular spaces; e, partly stellate or angular cells (formation cells), partly similarly formed spaces not yet communicating with larger caverns; f, such, which already communicate; g, reticular connective tissue substance."

"Closer examination showed, that the tumor according to its basic substance consists of fat-tissue, but that the latter is filled by numerous caverns of varying size and form, which contain the milky fluid. Within the central parts of the tumor the caverns lie closely together, whilst in the peripheral portions the fat-tissue still predominates and the caverns are more scattered; altogether, however, the caverns form the predominately larger part of the tumor

* Weichselbaum, Virch. Archiv., vol. lxiv., p. 145.

and frequently anastomose. Their size varies from microscopic smallness to that of filberts and over. In form the caverns, visible to the naked eye, are never regularly round, but mostly sinuous or fissure-like, or else they resemble shorter, mostly irregular canals and spaces. The microscopically small fissures appear in a similar form; they also are but rarely perfectly circular, but usually possess smaller or larger sinuosities or resemble narrow fissures. All the caverns have a proper lining, which mostly, particularly in the smaller ones, is very delicate; only a few of the larger ones possess a thicker wall to the thickness of a mlm., which is of a whitish or brownish yellow color. The sides of these larger caverns not rarely obtain a reteform appearance, the connective tissue, of which the wall consists, projecting in the form of thin trabeculæ; besides these, many smaller apertures, leading into neighboring caverns, are seen upon the inner surface. The wall consists of parallel, straight or undulating fibres which between them enclose narrow connective tissue corpuscles. In the larger caverns with somewhat thicker walls scattered, smooth muscular fibres are also inserted between the connective tissue elements. In many caverns, especially in the most minute, the wall is exceedingly delicate, consisting of but 1 or 2 layers of connective-tissue fibres; in others it appears loosened, fissured. or appears to be entirely absent, so that the cavity immediately joins the fat-tissue."

"As a rule, I found no endothelium in the larger caverns, but in the smaller it is seen here and there in the form of narrow, spindle-formed cells. In those places where I found the smallest and youngest caverns, the endothelium is represented without exception. The anastomosis of the caverns may be observed by the naked eye, and was, moreover, placed beyond a doubt by experiments of injection. The fat-tissue is also represented in the tumor, especially in the periphery; it is traversed in every direction by connective-tissue, which in several places acquires a particular volume. The great richness of this connective tissue in brown or brownish-yellow pigment is striking; the latter is either finely granular, or else in coarse scales, and is usually met with in circular or spindle-shaped, or oblong groups of vascular form. The pigment accompanies the connective tissue strands down to their finest terminations between the fat-cells, where it forms more angular or stellate figures."

"Small arteries are met with here and there in the connective

tissue, which are distinguished by a remarkable thickness of their walls; in many the walls are so thick that they almost touch one another; other arteries again appear compressed or even entirely obliterated, their lumen being filled with newly-formed connective tissue. Evidently the wealth of pigment of the connective tissue is in connection with the obliteration of single vessels, the latter being probably the consequence of the compression of the blood vessels by the origin and dilatation of the caverns. There are small, yellow places in the fat-tissue, of scarcely pea size, which present themselves to the naked eye as if they consisted of solid connective tissue; microscopic examination, however, shows that they consist entirely or mostly of an accumulation of round cells, which are imbedded in a reticular basic substance. This accumulation is throughout found in those places where formerly a greater accumulation of connective tissue existed, and thence the proliferation of the round cells extends along the finer connective tissue strands into the fat-tissue as far as between the single fat-cells. At those places where the cell-proliferation attains a greater extent, the cells form larger, rounded groups resembling lymph follicles, which are bordered by a narrow capsule of parallel striped connective tissue, at whose inner surface a layer of spindle cells may frequently be observed, whilst from the outer surface more or less wide, serrated and branched processes pass into the surrounding fat-tissue. When several such follicular groups lie together, they may coalesce entirely or partially, whilst in those places where only a slight accumulation of round cells exists, no caverns can as yet be observed. We find then, where the round-cell tissue has attained a greater extent, that the latter is filled by a system of narrow fissures and caverns. They are distinguished by a peculiarly serrated boundary (a and b), by which they strongly remind one of lymph-capillaries. The finest fissures are scarcely as wide as the diameter of lymph corpuscles, the wider ones have a diameter of from 2 to 3 lymph-corpuscles and over, but they are not equally wide at all places, and mostly end in narrow points and prongs" (c).

"Laterally, also, they send off sinuosities and prongs, or even longer narrow processes, which either terminate in a similar manner in fine points or form the anastomosis with a neighboring cavern. These fine points and processes do not, however, always seem to terminate in a cul-de-sac, but here and there it has the

appearance as if they would pass without a sharp boundary into the intercellular spaces (as shown at d). Besides these we see single larger, angular or stellate cells with a circular nucleus or similarly formed caverns, which are as yet either isolated (e) or else have already entered into communication with the neighboring larger caverns (f). To these are allied naturally those caverns (g), which, though already larger, yet have still retained a certain resemblance to the stellate cells and caverns, and may be considered as transition forms to the broader caverns. The narrowed as well as the wider caverns show distinctly a proper lining; for they are sharply separated from the surrounding tissue by a delicate black contour, and by spindle-formed nuclei, which mostly are arranged in equal distances from each other, and must decidedly be looked upon as endothelium. In many of the finest fissures the wall is merely indicated by the spindle-form nuclei. In the larger caverns, the wall-contour ceases to be single, but already consists of two or more arches of fine connective tissue fibres; the wall-contour therefore approaches the one, which we have already learnt to know in the caverns in the other portions of the tumor."

"Microscopic and chemical character of the milky fluid. Completely invested with all the physical characters of milk, it presented under the microscope a predominant amount of exceedingly small, dust formed, pale molecules in active movement; besides these, only in much smaller number, somewhat larger, globular formations, which by their dark contour and peculiar fatty lustre proved to be small fat globules, and finally a small number of larger fat-drops. Lymph corpuscles could not be observed even in repeated examinations of the recent fluid, but I usually found them in the caverns of the hardened specimens."

"Chemical analysis by Prof. Schneider. The fluid has an alkaline reaction, and contains a slight amount of a flocculent coagulum giving the reaction of albuminous bodies. Upon addition of 20 times its amount of water saturated with carbonic acid, the fluid precipitates after several hours' standing a small quantity of a flocculent deposit; the fluid decanted from the latter becomes slightly turbid upon heating, and upon addition of acetic acid and saturated solution of Glauber salts a copious precipitate takes place. Ether extracts fat from the coagulum as well as from the decanted fluid; the fat crystallizes upon evaporation. We therefore observe throughout appearances which

are peculiar to chyle. According to microscopic as well as chemical examination, there can therefore be not the slightest doubt that the fluid contained in the caverns is chyle."

In Quincke's case, "the chyle vessels were injected exactly to the union of the intestine with the mesentery, not injected in the latter; the mesenteric glands were small and without chyle retention," and in that part of the mesentery through which no chyle flowed in consequence of closure of the vessels, the adipose tissue had disappeared, and a "tense connective tissue" was present. In Weichselbaum's case, the hypertrophied fat-tissue of the mesentery was filled with numerous anastomosing caverns containing a chylous fluid, and was "traversed in every direction by connective tissue." Omitting, for the present, any inquiry into the histogenesis of these organic changes in the textures of the mesentery, the facts nevertheless present themselves—that fatty development was found in immediate association with chyle stasis, and fat atrophy or transformation in connection with obliteration of the chyle vessels at the intestinal margin of the mesentery. How far the absence of chyle from the mesenteric vessels in one case and its retention in the mesenteric lacteals in the other instance, was concerned in the co-existing changes which took place in the fat-tissue of the mesentery, cannot, perhaps, be definitely determined, but it must follow as a logical sequence, that the opposite conditions of chyle retention and chyle suppression were predominant factors in producing the structural alterations.

The cases having been considered according to their anatomical arrangement, and each group having been followed by such commentary as appeared relevant, it now remains to consider the entire series of cases in regard to the pathological aspects of the effused fluid.

Pure chyle, which is only found in the lacteals, is a milk-white, opaque, slightly alkaline fluid, formed during digestion, possessing a seminal odor, and coagulating upon exposure to air and after death, separating into an albuminous serum and a clot which contains its morphological elements. It is conveyed by the mesenteric lymphatics to the receptaculum chyli, there commingled with the lymph, and thence flows through the ductus thoracicus into the venous system. Its microscopical characters consist in lymph cells, globulins, small granules not unlike minute

oil drops, and a molecular base—probably consisting of oil, which imparts to it its opacity and white color. The presence of red blood corpuscles is disputed. Colin and Dalton deny their presence except when derived from some hemorrhagic discharge, or from regurgitation from the subclavian vein,* in which latter event they would only be found in the fluid after it has passed through the lacteals. Recklinghausen, however, insists that red blood corpuscles are present. Chyle varies in appearance according to the character of the food, and its opacity and milkiness are dependent upon the quantity of fatty matter ingested. In the herbivora, when fed exclusively upon hay or straw, it is nearly transparent. Hewson says the chyle of crocodiles is white, and Duverney says it is the same color in rattlesnakes.

Reest has furnished the following analyses of human chyle, and of lymph, which, though differing somewhat in the relative proportions of the constituents from other analyses, may be accepted as approximately accurate.

Composition of Human Chyle from the Thoracic Duct.

Specific gravity,		1.024.
Water,	904.8	
Aqueous extractive,	5.6	
Albumen, with traces of fibrinous matter,	70.8	
Alcoholic extractive or osmazome,	5.2	
Alkaline chloride, carbonate, and sulphate, with traces of alkaline phosphates and oxide of iron,	4.4	
Fatty matters,	9.2	
	1000.00	

*The following is probably an example. A man, aged 42, had, five days before death, slightly injured himself in shaving. At the wound there arose a circumscribed swelling, with the appearance of vesicles, and a subsequent scab, remotely simulating malignant pustule, but unaccompanied with any constitutional disturbance. A few hours prior to his sudden and almost imperceptible dissolution, vomiting came, on but presently ceased. The cellular texture of the cheek and neck were found infiltrated with serum, the lymphatic glands of the thoracic and abdominal cavities swollen, blackish red, as if drenched with blood, some of them exhibiting slight blackish extravasation. All the lymphatic vessels, including the thoracic duct, were gorged with a dark sanguinolent fluid. Hasse, Path. Anat., Syd. Soc. Transl., p. 8 1846.

† Philosophical Transactions, London, 1842, p. 81 et. seq.

Composition of Chyle and Lymph before reaching the duct.

From a Donkey.	Chyle.	Lymph.
Water,	902.37	965 36
Albuminous matter,	35.16	12 00
Fibrinous matter,	3.70	1.20
Animal extractive matter soluble in water and alcohol,	3.32	2.40
Animal extractive matter soluble in water only,	12.33	13.19
Fatty matter,	36.01	a trace.
Salts, alkaline chloride, sulphate and carbonate, with traces of alkaline phosphate, oxide of iron,	7.11	3.85
	1000	1000

The relative proportion of the solid and fluid constituents of the chyle taken from the lacteals does not differ very markedly from that of the chyle taken from the duct, after its admixture with the lymph, but there is a very great difference in the relative quantities of some of the solid constituents. The proportion of fatty matter in the chyle taken from the lacteals is 36.01, in that taken from the thoracic duct it is but 9.2, whereas in normal lymph before it reaches the duct only a trace of fat is found, showing conclusively that the fatty matter is derived mainly, if not exclusively, from the food. The albuminoid substances are found in greater abundance in the chyle contained in the duct, and also in the lymph before reaching the duct, and hence must be derived from the food and from the blood.

In the few instances in which the milky or chylous-like fluid occasionally found in the peritoneal cavity has been analyzed, its chemical constitution has not differed from that of normal chyle, except in the relative proportion of the constituents. In Ormerod's case of effusion of a milky fluid into the peritoneal cavity, the fluid with a specific gravity of 1012.5. alkaline reaction, and containing 52,27 parts of solid material in 1000 parts, yielded 19.93 of fatty matter; in Van Camp's case of milky ascites, 17.50 parts of fatty matter were found, and in Lorain's case there was but 7.17 per cent. Extravasations of pure chyle ought to contain a larger proportion of fatty matter, than when the fluid is mixed with chyle and lymph.

Lymph is the fluid plasma of the blood, minus a portion of its elements consumed in the nutrition of the tissues and plus the excrementitious products of the waste and transformation of the tissues. It may be a colorless, nearly transparent, or slightly yellowish or greenish fluid, without any characteristic odor, with a slightly saline taste and alkaline reaction. Its specific gravity (Magendie) is 1.022, when defibrinated (Robin) 1.009, and when taken from dilated lymph vessels (Dähnhardt) 1.007. It coagulates spontaneously upon exposure to the air, and has been frequently found coagulated in the vessels and lymph spaces during life. Various analyses have been made, but most of them of specimens obtained from individuals suffering from some morbid condition of the lymphatic system, which had effected changes in the constitution of the fluid, and consequently cannot be accepted as correct. The analysis, by Rees, of the lymph taken from a donkey, (see page 7) and the following by Dähnhardt* of human lymph, taken from a person suffering from some disease, in which the lymphatic vessels were found dilated, will present the chemical composition with sufficient accuracy for our present purposes.

Water,		987.700
Fat,		0.030
Organic extractives soluble in alcohol,		1.284
Organic extractives soluble in water, extractive and albumen,		0.908
Inorganic substances soluble in water.	Organic substances insoluble in water—Fibrin and insoluble albumen,	1.699
	Chloride of sodium,	6.149
	Soda,	0.576
	Potash,	0.493
	Sulphuric and phosphoric acid and loss	0.221
Inorganic substances insoluble in water.	Chalk,	0.132
	Magnesia,	0.011
	Oxide of iron,	0.006
	Phosphoric acid,	0.118
	Carbonic acid,	0.015
	Carbonate of magnesia, Sulphuric acid and loss,	0.021
		1000

Sugar and urea are also found, the latter always in greater abundance than in the blood, and is manifestly derived from the metamorphosis of the tissues.

* Zur chemie der lymph, Virchow's Archiv., 1866.

Desjardins insists that the specimen obtained by him, from a patient afflicted with varicose dilatation of the superficial lymphatic network of the derma of left thigh, presents all the characteristics, both chemical and microscopical, of perfectly pure lymph. This fluid was emitted involuntarily at irregular intervals from translucent phlyctenulæ, having the aspect and size of grains of boiled sago, resulting from the varicose dilatation of the superficial integumentary lymphatic networks, which were in direct communication with ampullæ, in the immediate vicinity, which seemed to be the reservoirs for the accumulated fluid. It usually escaped drop by drop, and in one instance reached in quantity 5½ lbs. in 24 hours. Its color varied according to the duration of the emission; always opaline in the commencement, it presented after some hours the milky and opaque appearance of chyle. Gubler and Quevenne made careful analyses of several specimens of this fluid, with the following results.

	First.	Second.
Water, - - - - - -	939.87	934 77
Fibrin, - - - - . -	0.56	0.63
Caseous matter with earthy phosphate and traces of iron, - - - -	42.75	42.80
Fatty matter - - - - -	3.82	9.90
Hydro-alcoholic extract containing sugar, leaving after incineration chloride of sodium, with the phosphate and carbonate of soda, -	13.00	12.60
	1000.00	1000.00

"These specimens of the fluid* when first discharged were white, opaque (like skimmed milk), slightly yellowish, dull; decided alkaline reaction, feeble saline taste, animal odor. In from ten to fifteen minutes it coagulated into a soft, gelatinous clot, occupying nearly the whole space as in the liquid state, not, however, absolutely confining the serum. On first coagulation there was a little free milky fluid. The clot was of a yellowish white, passing to a cinnabar red, not uniform but of an arborescent striation, like newly formed vessels. When first discharged the clot was surmounted by a little spongy mass, like froth due to agitation, and preserved its color. The serum was lactescent, not so opaque, nor so yellow."

* Gazette Medicale de Paris, Tome 14, 1854, pp. 402, 405.

"Microscopic examination—300 to 500 diameters. Before coagulation. A number of yellowish corpuscles, like those of fresh blood, varying in size from the ordinary dimensions of a blood globule, to others not exceeding 1–200th of a milllimeter, spheroidal, not flattened, without nuclei, with smooth surface, regular contour, and more decidedly yellow than blood globules. Besides these, were others, less numerous, pale or colorless, of variable size, presenting a very light green shade, and containing little granules. Also an infinite number of granular molecules, and some fibrils of fibrin."

"Some of the specimens presented slight modifications. In some, red and white blood corpuscles were more numerous, and the little and spheroidal globules were less numerous."

"When the lymph had been separated into clot and serum, the fibrin entangled in its meshes the greater part of the blood corpuscles and white globules with the molecular granules. The serum was almost made up of the latter."

From these observations the investigators concluded that the lymph held suspended in a serous fluid: 1st, hematic corpuscles smaller than in the blood, some lenticular like blood, others smaller, spheroidal and smooth, which were modifications of the blood corpuscles. 2d. Pale, but little colored globules, some larger, others much smaller than the red blood corpuscles, resembling the white blood and lymph corpuscles, and presenting in their varying conditions modifications of the lymph corpuscles. They suggest the analogous nature of the very small colorless globules, representing the first stage of the development of lymph corpuscles. 3d. Molecular granules of fatty matter, identical with chyle granules. These analyses present the constitution of lymph very differently from most authorities—more like chyle in its opacity and milky appearance; but as there was nothing abnormal in the lymphatic system other than dilatation of the vessels, the specimens may be accepted as correctly representing lymph derived from the lower extremity of a woman 39 years old, "in satisfactory general health," with excellent appetite, good digestion, and accustomed to laborious employment.

The chemical analysis of Gubler and Quevenne differs very greatly from other analyses in the proportion of fatty and albuminoid matters and fibrin. The proportion of fat varied from 3.82 to 9.90 in 1000 parts. Rees found only a trace, Gme-

lin none, Dähnhardt 0.030, Marchand and Colberg only 2.64. Rees' analysis gives 27.59 as the aggregate of the albuminous matter, animal extractive soluble in water and alcohol or in water alone; with Gmelin the proportion of albuminous matter was 27.50; Gubler and Quevenne found from 42.75 to 42 80, while Marchand and Colberg only found about a tenth of the last quantity. Marchand and Colberg give 5.20 of fibrin, Rees 1.20, Gmelin 2.50, Gubler and Quevenne from 0.56 to 0.63. The chemists of Halle experimented upon a very small quantity of lymph, and Rees and Gmelin probably did not suspect the presence of the globules in the fibrinous clot, and may not have washed and drained it sufficiently for an accurate analysis.

Gubler and Quevenne* regarded these specimens of lymph as "normal as the blood in varicose veins." Its probable admixture with chyle, notwithstanding the retrograde direction of the current, is negatived by anatomical considerations, by the absence of any general dilatation of the abdominal lymphatics and of the chyle vessels, and by the fact that the vascular lesion was "restricted to a portion of the left thigh." All the phenomena indicate that the obstruction was limited to some of the ganglia of the groin or their efferent vessels, so that, remarks the experimenters:

"The lymph carried by the superficial and deep lymphatics meets with an obstacle, distends its vessels, and seeks a by-way to reach the ganglia nearer the thoracic duct. The deep lymphatics, assisted by the muscles, resist amplification; the superficial and their neighboring anastomosing plexuses dilate. In time other canals enlarge sufficiently to allow the lymph to gain directly the iliac ganglia, and finding issue, it passes by a retrograde course to the pelvic ganglia in traversing the perineal region. The stasis no longer existing, there is no occasion for passive dilatation, and there only remains the active amplification of certain supplementary canals which become filled with a superabundance of fluid."

The lymph in its regular course was arrested by the impermeable inguinal ganglion, accumulated in the ampullar enlargements and escaped by the dilated collateral vessels from the reservoirs by a reversed current. The lymphatic varicosities, becoming more apparent towards the upper part of the limb, were confluent at the level of the transiucent vesicles. There was a slight but appreciable swelling and thickening of the skin

* Loc. cit., pp. 454, 455.

and subcutaneous tissue on the antero-interior aspect of the thigh as low as the limit of the lower fourth of the limb, which extended outwards to the external and posterior aspects, losing itself in the buttock. Over the entire affected region the skin, when pinched or raised up, presented a thickened feel.

In Demarquay's* case of lymphorrhagia, the fluid, which was ejected from a minute vesicle situated on the outer aspect of the left thigh, was at first colorless, and acquired during its continuance a milky tinge. This change in the color took place at every emission, which occurred involuntarily at irregular intervals. It coagulated in a few minutes into a firm clot, in the centre of which a series of reddish filaments appeared, not unlike the striæ which were recognized in the clot in Desjardins' case. Demarquay, Lebert and others who saw this patient, after careful examination of the fluid, pronounced it lymph. The physical characters of the two specimens of fluid (Demarquay and Desjardins) were almost identical, and in both patients the pathological conditions were the same. The change in the color of the fluid and degree of opacity were due to the presence of fat, which varied in Desjardins' case from 3.82 to 9.80.

Numerous observations have been made of the microscopic, physical and chemical characteristics of lymph evacuated during the development and progress of well-recognized pathological conditions of lymph channels, or found contained, either in a fluid or partially coagulated condition, in lymph cysts, sacs, or developments. In many of such cases the evidences of disease were not more marked, and the fluid did not differ materially from that obtained in the two cases previously referred to; and in others in which there existed more decided morbid conditions, the fluid did not exhibit in an equal degree the departure from a normal standard, as presented by the analysis of Rees of the lymph of the donkey, or that of Dähnhardt. To illustrate these varying conditions of the fluid and their relation to the associated pathological conditions, I introduce a number of observations.

In Lücke's case of congenital lymphangioma, the mesh cavities of the cavernous trabecular tissue contained "partly coagulum and partly a serous fluid in which were found lymph corpuscles."

Reichel found in a congenital lymphatic cyst "a perfectly clear fluid, slightly adhesive, of weakly alkaline reaction, which upon

* See sase 59, American Journal Obstetrics.

exposure to the air coagulated into a beautiful, tolerably consistent jelly," and contained "red blood corpuscles, some finely granular matter, and ordinary lymph corpuscles."

The fluid discharged from the fistulous orifice, in Hecker's case, was very rich in albumen, with the addition of chloride of sodium. The tumor was infiltrated with serum, and contained "a firm, white lardaceous mass."

Gjorgjevic's case of congenital cavernous lymphangioma yielded a clear, yellowish lymphoid fluid, feebly alkaline, with a specific gravity of 1.020, and coagulated quickly and spontaneously. It contained lymphoid cells, globulins, and salts of blood serum, and, in 100 parts, 2.385 grains of serum-albumen and 6.085 grains of fibrin.

Billroth found, in a case of macrochilia, a lymphoid serous fluid, and a coagulum containing lymph corpuscles. In the fluid albumen and mucin were present. In a case of macroglossia, he found a white coagulum in the meshes of the cavernous tissue containing lymph corpuscles and fibrin. In an analogous case, Virchow found in the trabecular caverns "a rather clear, yellowish fluid coagulated into clear transparent masses, like the spontaneous coagula of the evacuated fluid."

In Day's case of extraordinary enlargement of the right leg and thigh, the chylous fluid which was occasionally discharged from "a small pearly-looking vesicle on the upper part of the penis;" "had a faint sickening odor, a salt-like taste, and was of alkaline reaction. Without uniformity in the rapidity of coagulation, the clot bore the closest resemblance to that of blood, except being softer and destitute of red corpuscles. Some specimens were less milky and more serous than others. It contained a large quantity of fatty (Beale) matter and fibrin, a molecular base like chyle, and numerous pale cells resembling white blood corpuscles (chyle corpuscles)." This fluid was lymph, and the hypertrophy which involved the skin, subcutaneous tissue, muscles and bone, was manifestly the result of lymphatic engorgement. Day's conclusions, that the presence of the cells resembling white blood corpuscles determined the chylous nature of the milky fluid, and his inference that the "fluid passed directly from the thoracic duct into the neighborhood of the dilated lymphatic vessels, and thus, by a retrograde movement, found its way out of the system," are untenable. For if this fluid, so closely resembling chyle, was generated in the chylopœtic viscera and entered the lymphatics, the conclusion is

inevitable that some communication must have existed between the lacteals or mesenteric vessels and the lymphatics of the right lower extremity, and that the stasis of the fluid and ectasia resulted from obstruction of the communicating vessels before their junction with the receptaculum. The physical condition of the boy proved conclusively that a large quantity of chyle did reach the blood, and it appears equally manifest that the excessive growth of the enlarged limb was attributable to the detention of an undue supply of nutrient material.

The following are analyses by Dr. Matthiessen of the milky fluid obtained by pricking one of several white elevations, the size of a pea, situated on the inner side of the right thigh of a patient of Mr. Berkly Hill, who two years previously had received a slight injury of the limb by a horse falling upon it. The limb had enlarged somewhat, had a brawny feel, non-œdematous, and the skin preserved its natural tint. "The fluid was alkaline, slightly yellowish, coagulated spontaneously in seven to ten minutes into a jelly-like opaque mass." The clot shrank rapidly, the fluid portion remaining milky. The fluid contained "blood discs, large nucleated cells and granules.

	Collected September 18, at 9 30 a. m. and 2 p. m., each time after a meal.	Collected September 24, three hours after breakfast.	Collected September 24, at 4 p. m.
Water	91.55	92.95	91.39
Albumen ..	7.60	5.15	5.77
Fibrin		0.15	.26
Fats.....		1.10	1.48
Salts	0.85	0.65	1.10

Buchanan reports the case of a woman who for a number of years discharged a white fibro-serous fluid, in varying quantities at irregular intervals, from a semi-excoriated surface situated on the inner and posterior surfaces of the left thigh, which was thickly covered with white pearly vesicles from the size of a pin's head to those met with in herpes zoster. The discharge ceased during three successive pregnancies, to be reëstablished immediately after the birth of the child, though during lactation it was neither so copious nor so long continued; and on one occasion, when neither pregnant nor nursing, a brownish yellow pus like fluid was squeezed from the tender and swollen mammæ, which under the microscope exhibited a "multitude of minute oil glo-

bules with a few well-marked colostrum corpuscles. The fluid varied in physical characteristics; sometimes more milk-like, sometimes more serous and opaiescent. Its milky character increased with the duration of the flow, and sometimes in odor and color was indistinguishable from pure milk, having a specific gravity of from 1011 to 1015, and yielding on standing a creamy layer, white and consisting of an aggregation of molecules densely packed together. Immediately after being passed it coagulated, the amount and aspect of the clot being the same whatever were the characters of the fluid discharged, and consisting of a network of fibrin, enclosing the milky molecules in its meshes. Under the microscope it exhibited numerous cells and nuclei entangled in the clot, with very few oil globules, and a molecular base not unlike that found in chyle. The cells closely resembled white blood corpuscles, were nucleated, with granular contents, and varied in diameter from 1-2000th to 1-4000th of an inch. The nuclei were more uniform, about 1-5000th, became more distinct on the addition of acetic acid, and some were free. The fluid after the deposition of the fibrin was neutral. No trace of milk sugar could be discovered. The following analysis by Professor Anderson exhibits its chemical composition.

Solid matter, . .	5.43
Water, ...	94.57
Fatty matter, . .	.71
Albumen, . . .	2.88
Other organic matters, .	.6
Ash, ...	1.24

Dr. Buchanan maintains that the white fibro-serous discharges from the skin are pathologically identical with similar discharges from the genito-urinary mucous membrane, and denies the possibility of any "leakage from the lacteal tract." He insists that the fluid in this case was chyliform, not chylous, resembling milk only in general appearance, "while its microscopical and chemical natures were quite different." If chyle, it must have found its way to the cutaneous surface by a retrograde movement through long tracts of vessels with valvular insufficiency. He also rejects the supposition that the fluid could be either modified lymph or the white serum of the blood, and claims that the only satisfactory explanation of the immense determination of the fatty matter towards the surface must be sought "in the

morbid activity of the multitude of epithelial cells, the function of which had become perverted," by which the fatty matter was eliminated from the blood. In support of this view he quotes Beale's opinion—"that, in cases of chylous urine, the fatty matter, in a molecular state, filters through the walls of the vessels and escapes at once into the urine; while in those instances in which actual globules are observed, the fatty matter is absorbed into the interior of the cells, where it remains a sufficient time to become converted into distinct oil globules." In conclusion, he maintains that the fatty molecules escaped through the glandular apparatus of the skin, though not denying that a "perverted function of the rete mucosum may contribute to a serous flux," and that fibrin may exude from the vessels directly or be secreted by the cells, its coagulation depending on the influence of the secreting cells. The morbid phenomena associated with the milky discharge consisted in attacks of recurrent erysipelatous inflammation, a more persistent serous infiltration, an area of cutaneous elevation, enlargement of the limb, ("its growth at the meeting of the upper and middle thirds" measuring three inches more than the corresponding part of the other limb, the area of enlargement gradually increasing during the later years, encroaching constantly upon the healthy parts,) and an area of reddened skin and vesicles.

Carter reports the case of a Parsee youth, from whose thigh, through a hardly perceptible pimple situated about three inches below Poupart's ligament, an occasional discharge of a milky fluid took place, sometimes amounting to a pint in 24 hours. The inguinal glands on the same side were "greatly enlarged, soft and doughy to the touch, but not painful." Pressure between the diseased glands and the fistulous opening arrested the flow, but when made immediately around the orifice the fluid escaped in a jet, leading to the supposition that there was a sac or reservoir behind the opening. Preceding each issue of fluid the inguinal glands became tumid, and when last seen the glands were enormously enlarged and the discharge continuing. His health was unaffected.

The fluid resembled milk, in color yellowish or bluish white, soon acquiring on standing a pinkish tint; odor hardly perceptible; reaction slightly alkaline; coagulated in five minutes, sepa-

rating into a firm clot and a milky serum. It contained groups of minute granules, red blood corpuscles, some apparently dividing; oil globules of various sizes; granular corpuscles, from the size of the globules up to 1-2000th of an inch in diameter, the larger being nucleated.

The following figure represents the lymph two hours after removal.

[Fig. 23.]

"(a) Groups of minute granules; a few masses of granules; hazy tint.

(b) Red blood corpuscles; oil globules.

"(c) Granular corpuscles, 1-3500th to 1-2000th of an inch in diameter, the larger being nucleated."

In the case of the adult Hindoo, reported also by Carter, the chylous fluid, sometimes exceeding in quantity one pound in a day, issued, either spontaneously, or from punctured tubercles, varying in size from a pin's head to that of a pea, which studded the thickened and corrugated skin covering the scrotum. During the intermissions of the discharge, and sometimes during its continuance, the urine became chylous. The inguinal glands on both sides were much enlarged, soft and doughy, diminished in size under pressure and with the appearance of chylous urine. Two or three hours after a full meal, the glands increased in size and again subsided.

While flowing the fluid assumed a decided rose tint, which increased on exposure. It coagulated in eight or ten minutes, and the clot on exposure to the air for an hour or more changed to blood red, the milky serum remaining unchanged. The fluid consisted "of a molecular base, a few granules; red blood corpuscles, some well formed, some granular and starred; corpuscles larger than these; * * lastly, granular corpuscles 1-2700th of an inch in diameter, and resembling lymph corpuscles."

The following figure exhibits these microscopic appearances of the lymph from the scrotum.

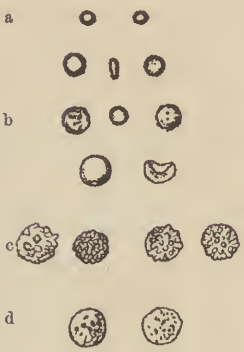
"a. Red blood corpuscles, 1-4000th to 1-6000th inch in diameter, some granular and starred.

"b. Corpuscles rather larger, 1-3800th to 1-2000th inch, but like them; color less clouded and margins less irregular; numerous.

"c. Numerous nuclei, varying in size (1-3800th to 1-2500th inch), some mulberry-shaped, some flattened.

"d. White blood corpuscles (?), very few, 1-2700th; fibrinous striæ."

[Fig. 24.]



Dr. Carter insists that the fluid discharged from the thigh of the Parsee youth "was a rich chylous fluid"—in fact, chyle flowing in a retrograde current from the lacteals through vessels defective in anatomical construction and directly connected with the enlarged inguinal glands.

In both cases the lymphorrhagia was directly connected with glandular enlargements. In the first, the retrograde movement of the fluid found its cause in glandular obstruction; and in the second case, it seems manifest that the retrograde current was caused by obstruction produced in a similar manner. It may have been true, as suggested by Carter, that the function of the glands had been greatly increased, which would in a measure explain the richness of the fluid in corpuscular elements, but would not account for the retrograde movement of the fluid. To locate the obstruction in the tumefied and doughy glands, which conditions seemed to bear a direct relation with the issue of the fluid, is more consonant with anatomical considerations than the supposition that the chyle had flowed backward through several tiers of glands, involving the existence of anatomical defects, which would probably have been demonstrated at an earlier age than 19 in the youth and adult age in the Hindoo.

Cholmely reports the case of Louisa R., who was born cyanotic, and during after life was very susceptible to the influence of cold and suffered from frequent attacks of dyspnœa. During her sixth year of age the right lower extremity began to enlarge, the swelling commencing in the leg and ankle extended upwards, finally involving the entire limb, but did not extend above Poupart's ligament. The entire extremity was soft, firm and elastic; the firmness was more marked towards the lowest part, was

always greater when standing and after exercise, and diminished in the recumbent posture. It did not invade the foot or leg when either a lace stocking or shoe was worn, but terminated at the upper margin of the pressure. A milky-looking alkaline fluid, either dribbled from excoriations over the tendo-Achilles or escaped through punctures made through the roughened, dry and scaly integument, which under the microscope showed "a large number of colorless cells, smaller than blood corpuscles, each containing from two to four nuclei, and some granular matter, free nuclei, granules and plasma. The coagulum consisted of a finely fibrillated structure, holding entangled a large number of cells and nuclei. When heated the fluid coagulated solidly." The condition was that of lymphatic engorgement, more probably finding its cause in some cardiac impediment to the exit of the fluid from the thoracic duct than in any obstruction of the lumen of the vascular apparatus, and the subsequent to and fro movement of the lymph, according to the position of the affected limb, was due either to the congenital absence or acquired insufficiency of the valves of the lymphatic vessels of the limb. The stasis of lymph was more a hypostatic result, than a forcible retention, yet the consecutive changes in the fluid and the hypertrophic development were well-marked and analogous to those presented in cases of mechanical detention of the lymph in limited localities.

In Fetzer's case of a "peculiar disease of the lymph vessels," the milky turbid fluid, which proved on chemical examination by Prof. Schlossberger, and microscopic examination by Prof. Köstlin to be lymph, trickled from a number of wart-like protuberances on the abdomen, which were in direct communication with dilated lymph vessels. The milky turbidity of the fluid was due to the amount of fat it contained, which Fetzer suggested might have been absorbed by the lymph vessels from the fat tissue of the abdominal walls and contiguous parts. This patient had from her eighth year borne a tumor in each inguinal region, which had been supposed to be herniæ (see cases 60, 61, 63, 64 and 65, *Amer. Jour. Obstetrics*), but which proved to be a congeries of dilated lymph vessels.

Roberts reports a case of disease of the lymphatics of the abdominal integument, with occasional discharge of chylous urine, in which the hypogastrium was studded with numerous vesicles, which varied in color, sometimes pale like lymph, at other times

milky like chyle, from which issued, either spontaneously or when punctured, a fluid, which always coagulated upon boiling or the addition of nitric acid, and after standing several hours separated into a clot and serum. When shaken with an equal bulk of ether, it became "transparent and yellowish, like blood serum," was always alkaline, and contained "fibrin, albumen and fat," and pale corpuscles identical in structure with the white corpuscles of the blood and chyle. The vesicles communicated one with another, and were developed subsequent to a succession of abscess formations, which probably obliterated the lymph vessels which conveyed the lymph from the abdominal integument of the infected area to the inguinal glands. The affected integument was immensely thickened and traversed by numerous canals and lacunæ, varying in size from a hair to a crow's quill, communicating by small orifices and lined, as were the vesicles, by a smooth glistening membrane made up of spheroidal and nucleated cells, like those found in the fluid discharged.

In view of the 'absolute identity of the discharge in these cases with chyle and lymph," Roberts maintained "that the structures which produced them were anatomically related to the lacteal and lymphatic tissues," which, in consequence of their hypertrophic development had acquired "the property and function of the cells lining the lacteal ducts and glands."

In Monod's case, the dilatation of the lymphatic vessels on the anterior portion of the right internal malleolus followed a severe sprain of the right ankle. The fluid, which issued through a fistulous orifice, upon examination by M. Ch. Robin, exhibited white lymph globules, globulines in great numbers, and "blood globules presenting the peculiarities ordinarily observed in these elements when present in lymph serum."

Hilton saw a case of enlargement of the right thigh from which, through an aperture situated about the middle of the inner side, a milky fluid was occasionally discharged, which coagulated spontaneously, and contained lymph corpuscles, granules, and fatty molecules, much albumen, a moderate quantity of fibrin, but no sugar.

A number of other instances of milky discharges and collections might be cited, but the foregoing are sufficient to show that, under very varied conditions, the lymph will undergo certain changes which impart to it the physical properties of chyle.

In all these cases, stasis of lymph was the single condition uniformly present. Why the retention of lymph in any circumscribed locality or in obstructed channels should increase the relative quantity of fat has not been satisfactorily explained. The theory of chyle regurgitation is altogether untenable, and the hypotheses of Buchanan and Roberts are equally unsatisfactory. Fetzer's suggestion of absorption by the lymphatics of the fat particles of the contiguous fat tissue is at least plausible, inasmuch as in nearly all the cases of lymphorrœa great exhaustion and depression immediately followed these discharges, from which the patient usually recovered after prolonged rest with a nutritious and easily digested diet. Some died of phthisis pulmonalis. It has not, however, been observed that these discharges were accompanied by marked waste or consumption of the adipose tissue; more usually, in the immediate vicinity of the ruptured vessels, there has been observed an increased development of the adipose tissue, and in some these conditions have been free from indications of debility, waste, or consumption of the fat. In many cases the fluid has varied in degree of opacity and quantity of fat at different periods of the discharges, sometimes beginning as a serous fluid, and gradually changing into a milk-like, opaque fluid, rich in fatty elements. M. Sedillot attributed the milky appearance of the fluid in Vidal's case of galactocele to the presence of an infinite number of zoosperms, but their presence has been disproven, and M. Gosselin has expressed the belief that the milky appearance was produced by a combination of the cholesterine and the fatty contents; but cholesterine has been but very rarely recognized in such milky collections and discharges. I cannot offer an explanation less free from objections than either of those enumerated, but there are a few considerations worthy of mention in this connection. Virchow was the first to call attention to lymph thrombosis, and to insist that such coagulation might be caused either by inflammatory processes taking place in the endothelial lining of the lymph vessels and spaces, or by pathological alterations of the lymph. Lymph coagulation* is manifestly governed by the same

* The coagulability (A. Schmidt) of normal lymph is very small, in spite of its contained fibrin, and therefore shows little disposition to thrombosis. Under pathological conditions, however, normal lymph is supplanted by another liquid, which is either a transformed fibrinogenous substance, or in part a special fibrinoplastic material exciting coagulation.—Wagner, Man. Gen. Pathology, Amer. Edit. 1876, p. 197.

physical and pathological laws as blood coagulation, and it is not improbable that the formation of lymph and blood thrombi is the result of similar pathological conditions of the vessels respectively of the lymph and blood vascular systems, and of such changes in the constitution of the fluids as favor fibrin separation. Retardation of the current, stasis, disturbance of the normal relations of the watery and solid constituents, elevation of temperature, hyperinosis, inflammatory conditions of the vessels and of their walls, and various other occasional conditions favor the coagulation of fibrin, and consequent formation of thrombi. The primary disturbances may refer either to the textures or fluid contents of the vessels. Thromboses from causes which relate exclusively to changes which have taken place in the lymph may lead to obstruction, stasis of the lymph, dilatation and rupture of the vessel, and concomitant nutritive changes in the vascular walls, or the entire chain of morbid phenomena may find their origin in nutritive disturbances beginning in the vascular system. Thrombosis, or inflammatory processes affecting the vascular apparatus, may either produce or result from the other. Unfortunately the attention of observers has been too exclusively confined to the study of the nature of the chemical and microscopic alterations of the fluid in these cases of milky collections and discharges, and beyond the mere mechanical disturbances occasioned by narrowing, occlusion, distension, ectasia and rupture of the lymph vessels, inquiry has been but rarely prosecuted. It is true that a limited number of observations of diseased conditions of the coats of the thoracic duct and larger lympnatic vessels have been recorded (see cases previously cited), and in a few isolated instances inflammatory processes limited to the intima vasorum have been distinctly recognized, usually, however, associated with puriform contents and discrasic processes of a cancerous or tuberculous nature, or with pyæmic or septic conditions. It is undoubtedly true that in the majority of the cases of diseased lymphatics, even in those cases where the coarser morbid appearances and structural changes were confined to limited areæ of vascular continuity, the lymphatic affection was secondary; and while it must be admitted that diseased conditions of the vascular walls, especially of the intima, cannot be dissociated from the danger of extension and systemic contamination, yet it frequently happens that pathological processes are limited by thrombi and impenetrable glands,

which may, however, in turn become centres of new infection. Inflammation and thrombosis, remarks Quincke, cannot at present be distinctly separated. "These are the pathological processes which (Quincke) usually cause circumscribed narrowing or complete occlusion" of lymphatic vessels, but these conditions may also be produced by thickening of their coats, adhesion of their internal surfaces, fibroid transformation of the coats, calcification of the coats or of a thrombus, lodgement of particles of cancerous or tuberculous matter in the lumen of the vessel, compression from cicatrices, induration of the surrounding connective tissue, tumors, diseased glands, stasis of blood in large veins, cardiac diseases, erysipelatous inflammation, excessive exercise of function, mechanical obstructions to the lymph stream and paralysis of the coats of the vessels, and "within the area from which the narrowed or occluded vessel originates there is lymph stasis, dilatation ot the lymphatic trunk and œdema of the tissues." Thus the structural and mechanical changes which may take place in the dilated, narrowed or occluded lymphatic vessels may be satisfactorily accounted for, and the alterations which ensue and impart the milky or chylous character to the fluid contained in the vessels affected by the interruption of the current, which are so generally associated with narrowing, occlusion or dilatation of the vessels, are believed to be due to pathological processes originating in the tissues of the affected vessels. In occasional instances, the first discharge of fluid was serous, or lymph-like, but after the occurrence of inflammatory processes involving the integument and perhaps the underlying cellular tissue, the subsequent discharges were milky or chylous; and in several of the congenital cases of lymphangiectasia mainly due to malformation of the vessels, the fluid presented only the characters of normal lymph. These circumstances prove nothing in the presence of the fact that in some of the cases in which the discharged fluid was milky or chylous-like, there was not present at any time during the progress of the case any symptom appreciable either to the patient or observer indicating inflammation, but they suggest a connection between the alterations of the fluid and the pathological processes so frequently associated with these milky lymphorrhagiæ. The alterations in the constitution of the lymph consist chiefly in an increased proportion of fibrin, the addition of numerous cell elements, not unlike endothelial cells, white blood corpuscles, occasionally red blood corpuscles, lymphoid

cells, granular matters, a varying quantity of albumen, and fat. Can these constituent changes be connected with inflammatory processes affecting the intima of the vessels?* Klein† has shown that in acute and chronic inflammations of the serous membranes, the hyperæmic stage is characterized by active and profuse germination of endothelial cells, which swell up, and their protoplasm becomes "occupied by a greater or smaller number of variously-sized granules." From the rapid and abundant transudation from the blood-vessels these cells become loosened, are finally detached, and disintegrate, leaving larger or smaller areæ of the surface bared of endothelium. The nuclei of the endothelial cells also exhibit distinct appearance of division, and the numerous cells which are sharply distinguished from the white blood or lymph corpuscles, and the lymph corpuscles which appear in the exudation are believed by him to be the offspring of the germinating process. He has also observed in similar inflammatory conditions unusual dilatation of the lacunæ and connecting canals of the lymph canalicular system, and witnessed migratory cells freely "passing out of such lymph lacunæ into neighboring lymphatic vessels widely dilated." He believes that an exudation of the colorless and colored blood corpuscles takes place through these dilated lymph channels. The anatomical changes which take place in acute pleuritis are analogous. The injected parts of the serosa soon lose their (Fraentzel) glossiness, transparency and smoothness, the endothelial cells are early cast off, the lymphatics become widely dilated and filled with a clear fluid, poor in corpuscles. These changes are always (Fraentzel) accompanied by an exudation composed, in varying quantities, of a serous fluid, fibrin,‡ cells, lymph, and a few blood corpuscles.

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* "In experiments with respect to the relations existing between the intima and the blood in closed venous pouches, Durante (Oestr. Jahrb., 1871, p. 321) found that the blood remained liquid so long as no inflammatory changes had taken place through the mechanical irritation of the needles used, and that coagulation of the blood went hand in hand with changes of the endothelium. D. therefore assumed, that the fluidity of the blood shut up in a vessel is dependent upon the normal functions of the vessel's walls."—Wagner, loc. cit. p. 196.

† Anat. of the Lymphatic System, p. 62 et seq.

‡ The relative proportion between the fibrin and the albuminous serum is very variable. It has an alkaline reaction, a yellowish-green color, and a specific gravity from 1.095 to 1.030. The upper strata are generally quite clear, but if the fluid is shaken up, the diffusion of the sedimentary particles through it gives it a whey-like aspect. The sediment consists of flakes of fibrin, and to a less extent

Excepting the presence of fat, the constitution of the exudation accompanying these inflammatory conditions of the peritoneal and pleural serosa bears a striking resemblance to that of the altered lymph found so generally in the cases of narrowing, occlusion, or dilatation of lymph channels; and inasmuch as the intima of these widely expanded lymph sacs is identical in structure with that lining the lymphatic channels, it is not improbable that changes in the fluid contents of the latter may be due to similar pathological processes affecting the intima vasorum. The fatty matter so uniformly found, in varying quantities, in the lymph collections and discharges, must undoubtedly owe its presence to the metamorphosis of some of the products of the pathological process. The lymph corpuscles and fibrinous exudate may undergo fatty metamorphosis.

Wagner (loc. cit., p. 225) defines dropsy to be "the morbid accumulation of a fluid more or less like blood-serum and lymph in the parenchyma of the tissues, or in closed serous cavities." Œdema, he continues, "consists in a pathological accumulation of quantitatively and qualitatively changed lymph in the lymphatic radicles, also in other spaces in the tissues and within many cellular and fibrinous elements." * * * "The unequal disposition of different parts to œdema depends partly on the difference in circumstances which effect the passage of lymph from out of the radicles into the main branches." In dropsy of the serous cavities (Wagner) the endothelia of the membrane are easily detached, the lymphatics are widely dilated, and the tissues of the membrane sometimes exhibit fatty metamorphosis of cell elements. The liquid in dropsy, œdematous or dropsical transudation, consists of water, salts, albumen, fibrin, "fats, in small quantity in recent, in larger quantity in old dropsies," extractive matters, and various other substances. The fibrin in all transudates is in proportion to the albuminous contents. It is not secreted as such, but is the product of the combination of the fibrinogenic substances. Normal lymph contains lymph corpuscles, oil globules, fibrogen, fibro-plastic substances, and, with the exception of the coloring matter, the remaining constituents of the blood. "Fatty metamorphosis consists in a transforma-

of fat, of debris, and of cellular elements, especially lymph corpuscles. Sometimes the serous fluid is rendered so turbid by the presence of lymph corpuscles, that we are in doubt whether the exudation is fibrino-serous or purulent,"—Fraentzel, Ziemssen's Cyclopedia, vol, iv., p. 611.

tion of protein compounds into fat drops." It affects all tissues, especially connective tissue corpuscles, cell elements, and all kinds of vessels, most usually beginning in the intima. Thus, in inflammation of the serous membranes—lymph sacs, all the factors necessary for the fatty transformation of the fluid exudate into fatty fluid are, to a greater or less extent, present.

The foregoing suggestions render it necessary to recur to the consideration of the character of the milk-like fluid found effused into serous cavities, which I have previously indicated must be classed according to its pathological aspects into a chylous-like or a fatty fluid. Much the larger number of the cases of chylous-like effusions into the peritoneal and pleural cavities were manifestly due to the escape of the contents of chyle conveying vessels; but all the cases of chylous hydrocele, cases 27, 33, 41, and probably others of the cases of milk-like ascitic fluid, and the case of "lymph concretion" in the pleural cavity (34) reported by Curling—must be excepted from this category. The fluid in the cases of chylous hydrocele was undoubtedly altered lymph, the changes being, probably, consequent upon pathological processes affecting primarily the lymph vascular system. In the exceptional cases of milk-like ascitic fluid, it seems equally manifest that the character of the fluid was directly connected with the co-existing degenerative processes. Quincke has reported two cases of adipose or fatty dropsy connected with peritoneal and mesenteric cancer. Analogous cases have been reported by Friedreich and Klebs. Bergeret's case of "oily ascites" (41) was associated with suppurating lymphatic glands. In Hughes' case (27), "cerebriform cancer" was present, and in Quincke's case (43), a cancerous nodule developed in the subcutaneous cellular tissue at the point where the puncture was made to evacuate the dropsical fluid. In several of the cases of fatty ascites, tumors were distinctly recognized in the abdominal cavity; in a few instances supposed to be enlarged mesenteric glands, but in the absence of an autopsy, the nature of the glandular affection could not be determined. In two or more cases, pulmonary tuberculosis was present. The presumption is, that in those cases of adipose ascites or fatty accumulations in the pleural cavity which were associated with cancerous or tuberculous processes, the serous membranes were either primarily or secondarily involved. In Quincke's case (43) of effusion of chyle into the peritoneal cavity, the inflammatory process which led

to thickening of the folds of the mesentery, and consequent obstruction to the flow of the chyle, must have had its beginning in the peritoneum.

(*To be continued.*)

THE MEDICAL THERMOMETRY OF CERTAIN DISEASES, AS THEY PREVAIL IN THE SOUTH AND SOUTHWEST.*

(Read before the Shreveport Medical Society, March 5th, 1877.)

BY W. HILLIARD, M.D.

Intermittent Fever.

Of the essential pyrexiæ which prevail in these regions, intermittent fever offers thermal waves the most irregular and inconstant as to altitude. They are characterized by their sudden, sharp, rapid ascent, and their equally abrupt, precipitous decline; sometimes attaining altitudes alarmingly high—105° or 106° Fahr.—then descending almost to collapse—95.5° or 95° Fahr. Generally, however, the highest temperatures range from 102° to 104° Fahr. The writer cannot remember to have seen in this fever a higher temperature than 107.5° Fahr. Defervescence generally ceases at the health line. In some cases, the highest temperature will be only 100°, or 100.5° Fahr. These waves may extend over a period of only twenty-four hours, or they may be prolonged for a week, and in some cases even months. They may rise twice daily, daily, every forty-eight hours, or every seventy-two hours. These periods correspond respectively to the ordinary nomenclature of the several types of intermittent fever, viz., double tertian, quotidian, tertian, and quartan.

The thermal line of this fever presents two peculiarities, which distinguish it from all other fevers, which are, indeed, pathognomonic of the disease. These are periodicity as regards the rise, and defervescence once established always proceeding to the health line, and in some instances below it. The most important of these is the defervescence. Invariably, in uncomplicated intermittent fever the mercury will, during some period of every twenty-four hours, stand at or below 98.5° Fahr. Periodical rises are not strictly peculiar to this pyrexia; but periodical elevations followed by complete defervescence are.

* The paper as read was referred to the Committee on Publication, and by them forwarded to the New Orleans Medical and Surgical Journal.

It must be borne in mind that these diagnostic features do not hold good when the affection under consideration is complicated with some other malady which is pyretic—for instance, pneumonia. In such a case, however, the thermometer will enable the physician to diagnose the intermittent fever as a complication. In the combination cited there would be two pathological wave lines: one produced by the pneumonitis, at all hours above the health line, gently undulating, with its evening altitude a little higher than that of the morning; the other superimposed on the pneumonia line, its greatest altitude being several degrees above it, its lower coinciding with it; its rises being periodical, sudden and rapid; its depressions equally as abrupt. Intermittent fever offers many exceptions to that correlation of pulse and temperature which generally exists in other fevers. This well-known correlation may be briefly stated as follows: an increase of temperature of one degree Fahr. corresponds with an increase of ten beats of the pulse per minute. For example: with a temperature of 100° Fahr., the pulse should be 80; 103° Fahr., the pulse should be 110, and so on. In this calculation, the normal adult pulse is reckoned at 60 per minute in the recumbent posture. Now the exceptions referred to alter the correlation in both ways. That is, with a high temperature the pulse may be comparatively slow, and, vice versa, the pulse may be quite frequent and the temperature low, even physiological, or below.

High temperatures, with a comparatively slow pulse, are generally observed during the cold and hot stages. The reverse—frequent pulse and low temperature—more frequently obtains in the sweating and the apyrexial periods. The writer could cite many cases which have fallen under his own observation where the mercury would rise to 103°, or 104°, or in some cases even 105.5° Fah., with the pulse respectively only 90, 100, or 110. Some cases arise with the pulse 60, or 70, and the temperature 100°, or 101° Fahr. During the sweating and apyrexial stages, the cases are not infrequent where the pulse ranges from 100 to 120, or even 130, and the mercury registers 99°, 98°, or, during the apyrexial period, may be 96°, or 95.5° Fahr. This want of correlation of pulse and temperature in this fever is so frequent that it is well to be remembered. It is proper to add, however, that it is not peculiar to this pyrexia, as it is occasionally ob-

served in others. Whenever it occurs in any pyrexia, it probably depends upon some disturbance of the inhibitory function of the vagus nerve; this disturbance increasing it in some instances, diminishing it in others. In the former condition the heart beats more slowly, in the latter more rapidly.

During his thermometrical investigations in this fever, the writer has been most forcibly impressed with the fact that, so far as regards intermittent fever, temperature *per se* is no indication of the gravity of the case. Practically, this observation is of the highest importance. Malignant cases, which terminated fatally in a few hours, have been observed where the thermometer indicated, at no period of the attack, more than 101° or 102° Fahr. Other pernicious cases, speedily ending in death, gave 106° or 107° Fahr. Fortunately, in these grave cases there are other symptoms, subjective and objective, which enable the physician, skilled in the observation of the malarious affections of this climate, to at once recognize the danger which stares the patient in the face, and to treat the case appropriately. To enumerate these symptoms would be transgressing the bounds of this paper.

The foregoing remarks on the thermometry of intermittent fever may be summarized as follows: Sudden, rapid, periodical rises, with abrupt, complete descents; altitudes variable, ranging from 95.5° to 107.5° Fahr.; diurnal defervescence, always complete in uncomplicated cases; frequent absence of correlation of pulse and temperature. The thermometer in this fever is no guide to prognosis; it sometimes betrays fever when the pulse and other symptoms do not.

Remittent Fever.

While the pathogeny and pathology of intermittent and remittent fevers are identical; while their clinical phenomena are in many respects quite similar; while, indeed, one frequently eventuates in the other; and while their therapeusis is nearly the same—the cinchona salts being the sheet anchor in each—yet, thermometrically, there are differences worthy of note. Yet, even the thermometry of the two diseases is in some respects the same. Compared with intermittent fever, remittent fever offers the same thermal range as regards periodicity and sudden rise.

The fall, however, differentiates the two diseases. Unless some depressing complication be present—for instance, hæmorrhage, or profuse diarrhœa—the defervescence of remittent fever never proceeds to the health line. As before stated, the thermal wave of uncomplicated intermittent fever always subsides daily to or below 98.5° Fahr.

While above the physiological line, these two pyrexiæ offer the same inconstancy as to altitude—in some cases, so high as to excite the gravest apprehension; in others, so low as to lull the unwary physician into a false sense of security. High altitudes in remittent fever are, however, of vast importance therapeutically, and especially in a prognostic point of view. In forming a prognosis based upon the high temperatures in remittent fever—temperatures above 104.5° Fahr.—it is of prime importance to consider whether they occur in the beginning, during the middle, or toward the termination of the attack. Occurring at the onset of the fever, they are not *per se* significant of danger. Persisting, however, for four or five days, the lowest altitude of each day being somewhat higher than the day preceding, these high markings of the thermometer presage danger. If it be about the ninth or tenth day of the fever, the temperature of the remissions during the entire course of the attack having not descended lower than 103° Fahr., and rising during the exacerbations to 104.5° Fahr., or 105° Fahr., the prognosis is indeed grave. If in this critical condition of affairs the mercury suddenly rises to 106° Fahr., and then rapidly falls, the general aspects of the case not improving, *dissolution will certainly occur within a few hours.*

Low temperatures in remittent fever do not always signify a favorable course. Fatal cases have been observed where the mercury never rose above 102° Fahr. In these cases, there are other symptoms which point unmistakably to the danger present. The temperature in some of these pernicious cases is apparently depressed by hæmorrhage, or diarrhœa. In other instances the nervous system is probably overwhelmed by the virulence of the malarial poison, and for this reason the temperature is low. In forming a prognosis, then, in the presence of low temperatures, it is important to consider carefully all of the attendant phenomena. It is, perhaps, superfluous to add if these

be favorable, the low thermometrical markings are highly encouraging; otherwise, they are not.

The want of correlation of pulse and temperature so frequently observed in intermittent fever occasionally obtains in remittent fever. When present, it is generally at the onset of the attack.

Finally, it may be stated that the thermal range of this fever, as it ordinarily exists in favorable cases, begins at 104° Fahr., during the exacerbation declines to 100° Fahr., or 101.5° Fahr. during the remission. These altitudes are maintained several days; afterwards the range declines steadily from day to day, until the health line is reached. When the disease eventuates in intermittent fever, the mercury again rises above the physiological mark, and displays the characteristic features of intermittent fever.

Typho-Malarial Fever.

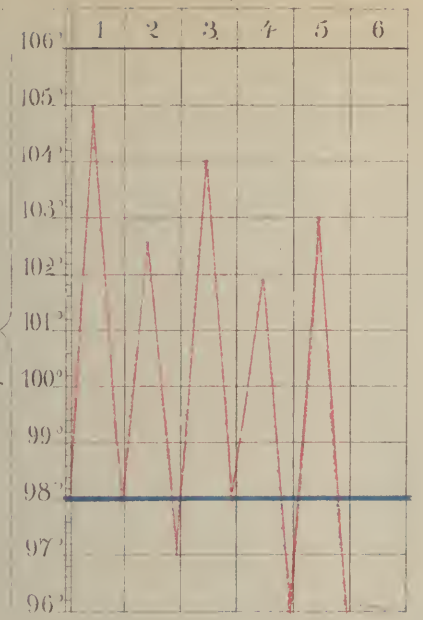
The etiology and pathology of this pyretic malady are still, to some extent, sub-judice. Its symptomatology, however, is quite familiar to those physicians who have resided in the malarious regions of the South and Southwest. Above all the rest of the essential fevers incident to this climate, typho-malarial fever stands preëminent as to duration. While in a few mild cases the mercury will recede to 98.5° Fahr. after ranging above that point for fifteen days, yet, in a large majority of cases the preternatural heat will extend over a period of at least thirty days. In some instances the pathological heat will last forty, fifty, even sixty days. Early in the career of this pyrexia, the thermal waves are generally high. For the first two or three days the lowest markings will be 103° Fahr., the highest 104°, 105°, or even 106.5° Fahr. The thermal wave during this period is, to all appearances, the same as that of remittent fever. Gradually, however, these high altitudes subside into a gently undulating thermal wave, only a few degrees, in mild cases, above the health line. Finally, when the mercury sinks to the health line, it will suddenly rise a few degrees above, then fall to rise again, displaying the thermometry of intermittent fever.

After the first few days of high temperatures are past, the very slight difference between the highest and lowest altitudes

Typical Thermal Waves of Intermittent, Remittent and Typho Malerial Fevers.

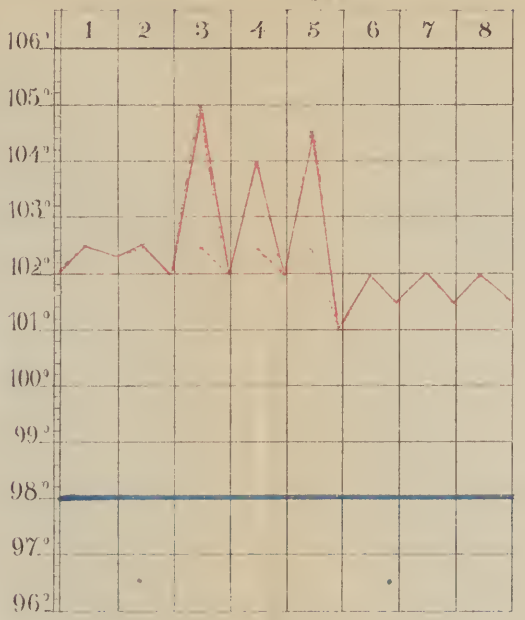
Health line (*blue*)
Fever line (*red*)

Fig. 1.



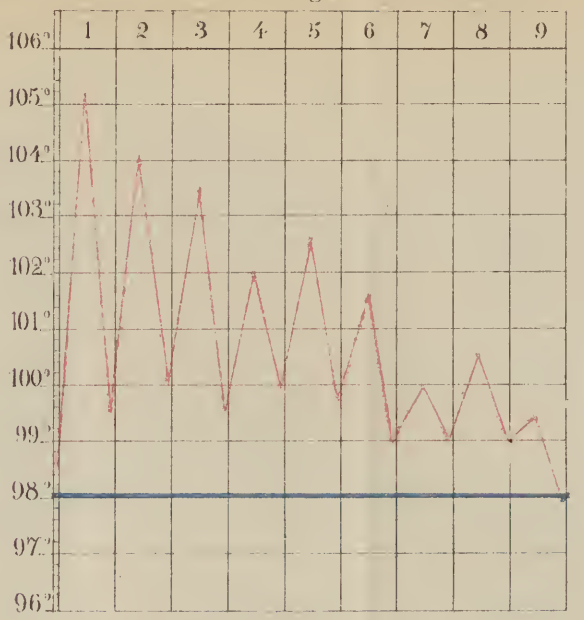
Uncomplicated Intermitt Fever

Fig. 2.



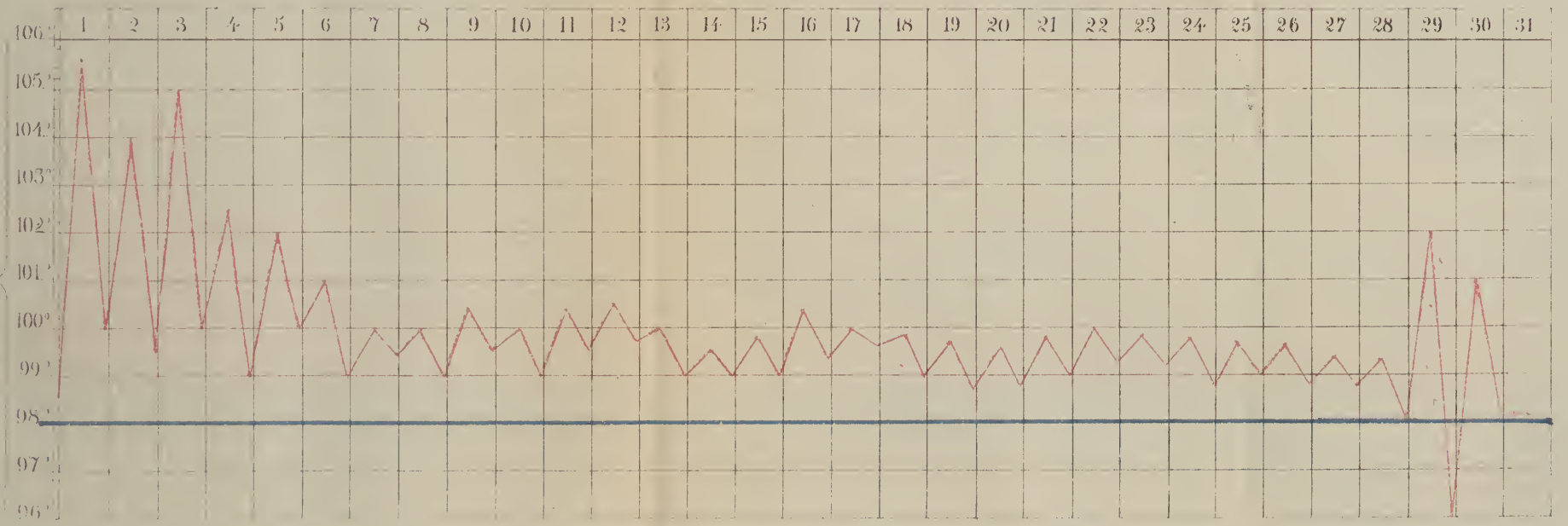
Intermittent Fever, complicating Pneumonia

Fig. 3.



Remittent Fever.

Fig. 4.



Typho Malerial Fever; on 29th day, waves of Intermitt Fever.

is quite noticeable, and is in striking contrast with the wave of remittent fever where the difference is so marked. In some cases the temperature is low throughout the attack. In a prognostic and therapeutic point of view, the thermometer is of the very highest importance in this fever. The high altitudes which so frequently obtain in the beginning of the attack are not indicative of danger; they are observed in mild as well as in severe cases. Indeed, it should be borne in mind, that low markings early in the career of the fever do not necessarily indicate a mild attack.

The early period of the fever past, the fifteenth or twentieth day of the disease attained, if now the mercury gradually, it may be almost imperceptibly, begins to rise, the morning temperature being the same or a little higher than that of the preceding evening, *there is danger ahead.* If this state of affairs continue until the mercury attains 104° Fahr., the prognosis is gloomy. If at this conjuncture, 104° Fahr. are maintained four or five days, with an increase of a few fractions of a degree, the case generally, almost invariably, terminates fatally. A sudden, rapid fall of temperature at this period, accompanied by prolonged epistaxis, or enteric hæmorrhage, is of the gravest import. After the fifteenth or twentieth day of the fever, uniformly low altitudes, no intercurrent affection being present, indicate a favorable issue.

The prognosis in this fever should, however, always be guarded; for it is a pyrexia liable to be complicated during its latter stages with fatal epistaxis, enteric hæmorrhage, pneumonia, or bronchitis—any of which are serious. The writer cannot refrain from expressing his high appreciation of the therapeutic indications furnished by the thermometer in typho-malarial fever, especially after the tenth day of the fever. At this period, accurate observations with the thermometer should be made thrice daily. Any altitude over 102° Fahr. after the tenth day should be promptly treated by frequently sponging the patient's entire surface with cool water, slightly acidulated with vinegar. A notable reduction of heat generally follows this measure, and the patient's general condition is ameliorated. It would be foreign to the object of this paper, however, to treat of the therapeusis of the disease.

The accompanying diagrams are illustrative of the thermal waves of the several fevers discussed in this paper.

Some General Considerations.

The leading physiologists and pathologists of to day taught, until only two years ago, that human life was incompatible with an animal heat over 112° Fahr. They said that life could endure only a few hours or days at 108° Fahr. The illustrious Murchison taught that 107° Fahr. could not be borne for twenty-four hours. Now, these opinions have been completely overturned by a case that occurred in the practice of Mr. J. W. Teale, of Great Britain, in September, 1874. The details of that case can be found in the *Monthly Abstract of Medical Science*, July, 1875, page 320, and the same journal, September, 1875, page 410. Briefly, the important points are these: The patient, a young lady, fell from her horse, receiving several injuries, the principal lesions being fracture of several ribs, some injury to the spine, exact nature not diagnosed, and several minor bruises in various portions of the body. In this case the temperature, taken by skilled, competent observers, with approved instruments, registered for many consecutive days altitudes ranging from 110° Fahr. to 122° Fahr. There were no hot bottles, hot bricks, hot blankets, or other sources of error whatever. At the alarming, incredible height of 122° Fahr., the index of the thermometer was buried in the bulb at the top of the instrument. This patient eventually made a complete recovery. This case is perfectly unique in the annals of medical thermometry. It upsets all our preconceived views of high temperatures. It certainly proves one point—in the present state of our knowledge it is not known what elevation of animal heat is incompatible with life. Practically, however, the daily experience of numerous scientific observers proves conclusively, that a temperature sustained at 105° Fahr. for five or six consecutive days imports danger, regardless of the cause of the pyrexia. In the vast majority of cases over 108° Fahr. preceded several days by 105° Fahr., in any pyrexia, is speedily followed by death.

Mr. Teale's case naturally suggests the question, whether in these high altitudes death ensues because of the excessive heat, *per se*, or from the violence of the cause, the morbific agent which has produced the intense animal heat. Pertinent to this question may be mentioned the fact, that many malignant cases of the various essential fevers terminate fatally, the temperature

Note.—In the diagrams the blue line marking health temperature is wrongly placed. It should be at 98.5°.—(Editor.)

never at any time rising above 102° Fahr. Indeed, according to the writer's experience, low thermometrical markings—100° or 102°, Fahr.—*in the presence of other symptoms which are notably grave*, are just as significant of danger as altitudes of 105° or 106° Fahr. In every case of pyrexia the nature of the fever, its period, and all the concomitant phenomena, should be carefully considered before forming any conclusions based upon the temperature.

The Galenic definition of fever, "calor præter naturam," "preternatural heat," is the only accepted definition of fever to-day. Now, the most signal service which the thermometer renders the physician—a service which alone should entitle the instrument to the highest consideration—is that it furnishes accurately and in a few minutes the amount in degrees of this preternatural heat; in other words, the amount of fever present in any case. No other known method of investigation can do this. Indeed, it is in the field of diagnosis, differentiating not only pyretic from apyretic affections, but the pyrexiæ themselves, that the thermometer has won its most brilliant victories, its greenest laurels. It is not the purpose of this paper, however, to advance the many claims of the thermometer as a method of investigating disease.

In conclusion, the writer would state that the opinions he has advanced in this paper are based upon a daily experience with the thermometer of seven years' active practice in Louisiana and Texas.

REMARKABLE CASES REQUIRING CÆSARIAN SECTION.*

(Reported to the Shreveport Medical Society, March 5th, 1877.)

BY J. C. EGAN, M.D., SHREVEPORT, LA.

Case First. I was called, August 24th, 1860, to see "Betsy," a negress, the property of L. D. Holstein, Bienville Parish, La, aged 33 years, above the medium height, in previous good health, the mother of one child, a son, at that time nine years of age.

The history of the case, as obtained from the patient and her master, was as follows: On May 4th, 1857, more than three years previous, while working in a potato patch early in the

* The above report was submitted to the Committee on Publication, and by them forwarded to the New Orleans Medical and Surgical Journal.

morning, she felt a sudden and violent pain in the left side, and immediately fainted. The condition of syncope was so profound and long continued as to induce the conviction that she was dead, and accordingly preparations were begun for her funeral. At length, however, her master perceived some evidences of returning consciousness, and sent for an eclectic practitioner residing in the neighborhood. He upon his arrival cupped her over the abdomen and left, having pronounced her four months advanced in pregnancy.

During the first week in November following, labor commenced. An intelligent midwife, Mrs. Cathy, was sent for. From her I learned that the os uterus dilated fully, and the labor seemed to progress naturally until the head appeared to be engaged in the superior strait. Pains were very active, indeed violent—so much so as to exhaust the woman for a time, then they would cease, affording intervals of rest, again to recur with the same result. Still the labor made no further progress. This state of things continued for over one month, after which all efforts at parturition ceased, and the woman in a measure seemed to regain her health.

In the fall of 1858—about one year later—a fistulous opening appeared $1\frac{1}{4}$ inches below the umbilicus, from which escaped pus and wool. Until a short time before, the woman had been engaged in the ordinary duties of carding and spinning.

In the summer of 1859, another fistula appeared a little lower down, from which escaped pus and wool also, the woman still living on, though suffering from hectic fever and debility. Upon being questioned, she admitted she had frequently produced abortion upon herself by the use of cotton wool and witch hazel tea, and that she had attempted it at the time preceding her first attack in May, 1857. This, then, is a brief outline of the history of the case.

On the day following my first visit (August 25th, 1860), assisted by my father, Dr. B. Egan, and Drs. F. Courteney and R. A. Stewart, I proceeded to operate. After first relieving the bladder by a catheter, I made an incision along the median line from a point just below the umbilicus to within an inch and a half of the symphysis pubis. I found the uterus adhering to the walls of the abdomen along the whole course of the incision. The womb, upon being opened, was found to contain a decomposed fœtus imbedded in a mass of most offensive matter. The

fœtus was without difficulty removed, being quite well held together by the ligaments, upon examining which, it was found that the left hand and foot were wanting.

Dr. Stewart then made a careful examination of the cavity, and found a pouch on the left side with some muscular bands stretched across its mouth. Upon cutting these bands, he discovered the missing hand and foot, after the removal of which the wound was closed with interrupted sutures, care having been taken that there was no obstruction to drainage by the mouth of the womb. At the time of the operation there was great emaciation, with hectic fever, but these symptoms very soon disappeared. The bowels were kept quiet for ten days with opiates, and the patient allowed, as food, a half saucer of gruel three times a day. She made a good and speedy recovery, to all appearances, yet in the fall of 1861 she applied to my father, Dr. B. Egan, to open an abscess on the left side of the abdomen, which discharged pus freely, and from which he took a quantity of wool.

I now propose to exhibit this woman to you, more than sixteen years after the operation, in the enjoyment of ordinary health. She has lived with her husband ever since, but has never again conceived.

Case Second. I was called, in July, 1866, to assist my friend, Dr. Mooty, of Athens, Claiborne Parish, La., in a case of difficult labor. I found the patient to be a young negress, of low stature, stout, and well-formed, about twenty years of age, and in her first labor.

Dr. Mooty stated that when called he found great difficulty in making a satisfactory vaginal examination, in consequence of the impacted condition of the rectum. He found the cord protruding from the vulva, which had been torn from the placenta by the negro midwife in attendance, though she stoutly denied it. He scooped out from the rectum a quantity of fœcal matter, and *clay*, such as the negroes use for heart-burn.

The woman was well-formed, and in seeming good health, the pains active, and he saw no reason at first to suppose there would be any obstruction to the delivery of the child. But upon the occurrence of a pain, and the approach of the head to the superior strait, it invariably pushed before it a saucer-shaped tumor, which prevented the passage of the head.

Conceiving, very justly, that this tumor consisted of the same pipe-clay impacted in the colon which he had found in the rectum, he administered active purgatives, without effect.

Finding this state of things sixty hours after labor had commenced, and satisfying myself that Cæsarian section offered the only available means of ridding the woman of the dead fœtus, I advised its performance. Acting upon my suggestion, Dr. Mooty performed the operation in the same manner as described in the first case. After the child was removed, the tumor, about the size and shape of an ordinary saucer, could be distinctly felt through the walls of the abdomen. The uterus contracted very soon, and the wound in the abomen was closed with interrupted sutures.

The after-treatment was the same as in the first case, but about the sixth day an obstinate diarrhœa set in, which soon removed the accumulation of clay. The woman recovered rapidly. I know nothing of her history since recovery.

REPORT OF A CASE OF POISONING BY VERATRUM VIRIDE, WITH REMARKS.

BY J. STEELE BAILEY, M.D., OF STANFORD, KY.

(Read before the Central Kentucky Medical Association, April 18th, 1877.

The poisons which the general practitioner is called upon to encounter, most frequently belong to the organic kingdom, and upon the promptness with which they are ejected from the stomach depends the safety of the patient; for the dangerous effects of all such substances advance in a very increasing ratio with the time they remain in contact with an absorbing surface. The vegetable poisons—those which act through the medium of the circulation and are rapidly absorbed, when introduced into the system in a liquid form—produce effects equally imminent; yet the treatment of such cases, while similar in principle to that pursued with organic medicines as relates to the importance of emesis, must be conducted with a less overweening confidence in remedies as antidotes, allowing for them, however, much value as auxiliaries.

The infrequency with which cases of poisoning by vegetable substances are met with in this region, has induced me to bring

before this Association a report of the following case, showing how readily alarming and destructive symptoms, if not death, may be produced by the incautious use of such a potent remedy as *veratrum viride* is known to be.

A rather intelligent colored barber, 30 years of age, who takes the daily papers and keeps himself posted on the current events of the day, contracted a cold during the month of January last, from the effects of which he suffered considerably. He told me that for several mornings preceding the accident which I will relate, he arose with a dull headache; was feverish; his nostrils were "stuffy;" he suffered with pains in the muscles of the chest and back; had a very annoying cough, with expectoration of frothy and tenacious mucus, characteristic of the first stage of catarrhal inflammation.

This "dry" cough after a few days gave place to a moist one, by which a loose secretion was readily thrown off. Being a "public gentleman," the cough annoyed him exceedingly, since he was continually "barking in the faces of the customers" whom he was shaving and trimming.

Being of an economical turn and possessed of much self-reliance, he concluded to cure himself without the aid and expense of a doctor. He remembered to have seen in the columns of his favorite, "the *Commercial*," a few days before, the very thing of which he was in need. He searched the paper, found the article, and saw from its reading that the prescription was most excellent for coughs, colds and consumption. He knew he had a cough, and that he *might* have consumption. He copied the prescription, carried it to the pharmacy, procured the medicine, took it to his shop and began its use. This was about 3 o'clock p. m., February 5th. I was called to see him at 1 o'clock a. m., following, and found that he had acted upon the principle that if a little would do good, a quantity would effect complete relief sooner.

I found him in a condition approaching collapse. He was bathed in cold, clammy perspiration, vomiting at intervals of three and five minutes; heart acting feebly, almost inaudibly (a cramped heart, as it were); pulse at the wrist making sixteen beats per minute. After I had been in the room a few minutes he summoned sufficient energy to speak, and complained of pain over the precordia, muscular cramps of the lower extremities, and

a peculiar sensation of faintness. He was so feeble that I could scarcely hear him articulate.

After this conversation and a hurried examination of his condition, I felt sure that "something had gone wrong" with him, and inquired what he had been taking; to which he replied, "nothing but a cough mixture." On inquiring where he had procured it, and if he knew its composition, he told me the source of the prescription as above related, and I found its composition to be as follows: tinct. American hellebore, tinct. lobelia, syrup squills, and simple syrup—two and a half drachms each of the tinctures, one ounce of syrup of squills, and two ounces of simple syrup. The directions were a teaspoonful three times daily, which would have given him about five (5) drops of the tincture of veratrum viride at each dose. He had taken it, however, in teaspoonful doses every half hour, until the contents of the vial were exhausted, which had occurred at 10 o'clock p. m. At this time he began to feel very weak and sick, as he expressed it, and went to bed and to sleep.

At about 11½ o'clock he was awakened by a great rush of fluids from the mouth. The vomiting was without warning or effort, and for a time was almost continuous. Feeling so strange about the head, and so faint that he thought he would die, he tried to awaken a boy, who slept in an adjacent room, by calling, but could not do so. He tried to get out of bed, but his legs failed him. After the lapse of half an hour he succeeded in crawling to the boy and making his wishes known—"to go and bring the nearest doctor." I reached him at one o'clock a. m., and found him in the condition already described.

Recognizing his condition as extreme and dangerous, and seeing that something must be done for his relief promptly, I adjusted my tackle with reference to the direction and force of the storm. I gave him a hypodermic injection of one half grain of morphia, applied mustard to the epigastrium, the nucha, the spinal column, the wrists and ankles, and gave *per rectum* one ounce of whiskey with ten grains of quinine. As I observed him, there would occur at intervals of four or five minutes a regurgitation of a mouthful of fluid resembling the albumen of egg; his eyes were rolled under the orbits so that the sclerotics only were visible; the sighing was frequent and profound; and the pulse was proportionately less than the breathing, the perversion being to the extent of twenty pulsations to thirty-two

respirations, which were shallow. In twenty minutes time I could plainly see that the remedies which I had administered were having good effect upon his condition. The vomiting ceased, the skin became warmer and the perspiration less copious; the sighing gave place to easy respiration, the heart became steady, its action forcible, while the pulse rose gradually in frequency and volume. A feeling of repose replaced the nervous agitation which had possessed him, and prior to my leaving him the pulse respiration ratio did not differ markedly from that of health. I left him at 2½ o'clock a. m., ordering his attendant to inject one ounce of diluted whiskey into the bowel at the end of an hour.

On visiting him next morning he complained of slight headache and nausea, with dryness of the mouth. The heart was acting with almost its accustomed force and frequency.

He recovered promptly from the effects of the veratrum viride, but his cough persisted, and he is now suffering with that bane of his race, mesenteric phthisis.

Veratrum viride belongs to that class of drugs which enter the circulation, and act through that medium upon the heart, and, as was formerly supposed, upon the brain and alimentary canal. These organs—the heart, brain, and alimentary canal—are affected in very different degrees by different poisons, or even the same poison under different circumstances.

Sir Benjamin Brodie, a physiologist of the long ago, but a very able one, has shown that certain vegetable poisons when introduced into the alimentary canal, affect life in consequence of the nervous connection existing between this surface and the sensorium; yet the same poison applied externally to a wounded surface acts exclusively through the medium of the circulating blood. The statement, however, made by various authors, that after a poison has found its way into the blood it attacks a particular organ, or set of organs, we find clinically true, as it is exemplified in the case just related.

The preparations of baryta and antimony affect the heart, and produce death by syncope. Arsenic is less definite in its action, influencing both the brain and the heart, but with varying degrees of force, so that it is difficult to determine which of these organs first fails in function. Hydrocyanic acid destroys life by its action upon the nervous system, whose energies

it would seem to extinguish without ostensible injury to any particular organ.

Veratrum viride seems to have special affinity for the heart, is a powerful spinal and arterial depressant, exerting but little influence upon the cerebral centres. It diminishes the force of the heart, and lowers the pulse-rate by a direct action upon the cardiac muscle and by stimulating the inhibitory nerve, and produces general vaso-motor paralysis more or less complete, according to the size of the dose. The preparation taken in the instance herein related was Norwood's Tincture, which contains twelve ounces of the root to a pint of alcohol, and is the strongest preparation in the market. The cumulative effect of the drug is one of its distinguishing characteristics, and makes it a dangerous agent in the hands of unskilled persons. It sedates and weakens the heart as does the lancet, but unlike the lancet, it leaves the same quantity of blood in circulation; hence the same labor to perform but with less power on the part of the central organ.

A peculiarity in the action of veratrum viride is that emesis is usually slower in occurring than from any other emetic medicine. In the case alluded to above, it was an hour and a half from the time the last dose was taken, and eight hours from the first, and even then the vomiting was effected by a spasmodic contraction of the stomach itself, without participation of the diaphragm and abdominal muscles. Another peculiarity is that it seldom if ever purges, and in this case the lobelia contained in the prescription was not sufficient to produce catharsis in a person of constipated habit, as was my patient. Doubtless if my patient had been in robust health, he would not have experienced such alarming symptoms, but his diathetic state, associated with tuberculosis and its accompanying dyspepsia, rendered him more susceptible to the toxicological action of the drug.

A CASE OF DOUBTFUL DIAGNOSIS, WITH REMARKABLY HIGH TEMPERATURE.

BY S. S. HERRICK, M D.

Sarah R., æt. 25 years, a full-blood negress, was taken with the first stage of labor at full term April 5th; but the progress of this stage was slow, and the child was not born till 6 a. m. of

the 8th. The amniotic sac had burst two days before, and an extraordinary quantity of waters escaped. The second stage was quite rapid, and was immediately followed by a rigor, in consequence of which I was sent for.

Reaching her a little before 7 a. m., I found reaction already commenced, with a temperature of 108½° F., and a pulse of 160, very weak and flickering. The midwife stated that the afterbirth had come away completely, and the uterus could be felt contracting well. On inquiry I learned that the renal secretion had been scanty for several days, that she had been feverish two or three days, and had not felt the fœtal movements during this time, though they had certainly been observed Friday, the 6th. The skin of the child was quite natural, and evidently it had not long been dead. No headache or other pain was complained of.

The infusion of digitalis was prescribed, ʒss every two hours, with reference to the condition of the heart and kidneys both. With such a pulse and temperature, and scanty urine, I thought it quite likely the next phase would be flooding or convulsions. However, she had neither, and by 12 m., her pulse had declined to 132 and her temperature to 101¼°. At 6 p. m. they stood at 104 and 100½ respectively. I then directed 15 grains of quinine to be given at bed-time, followed by the same dose at 6 a. m.

At eight p. m., I saw her again, having been sent for while absent from home, on the occurrence of another chill shortly after my previous visit at 6 p. m. On this occasion the temperature was found to be 106°. Thereupon I ordered 15 grains of quinine to be given immediately, and as much more an hour afterwards.

At 7:15 the next morning, I found her with a pulse of 108 and temperature of 97¾°, and she was thoroughly cinchonized. Thinking her safe for the day, I decided to withhold quinine till evening, but returning at 3:15 p. m., found that she had had another chill at 10 a. m. The pulse was now 154; temperature 105°. Ordered 15 grains of quinine at 4 and 6 p. m., though she was still deafened from the 30 grains taken the previous evening.

At 8 a. m., April 10th, found her pulse 94, and temperature 101¼°. Ordered 15 grain doses for 8:30 and 11 a. m., but she had another chill before there was time to give the first dose; still the quinine was given as directed. At 5:45 p. m., pulse 96;

temperature 101°. Ordered 15 grains quinine for 9 p. m. and again at daylight.

At 6 a. m. April 11th, found that she had had another chill at 4:40 a. m. The quinine had been given at 5 o'clock as ordered. She was now unconscious, for the first time, with a temperature of 104°, and pulse of 120. Quinine and I had been signally beaten, and it was decided to call for reinforcements. Dr. Holliday arrived at 9 a. m.

Here it is proper to state that the lochia became pale after the first day, and ceased on the third day. The abdomen was tympanitic, but no pain was complained of, even on pressure. The bowels were open. The urine was scanty but not albuminous. The uterus was very high in the abdomen and not fully contracted. At no time had the lochia been fetid.

The consultation came to a ready agreement that the case would probably result fatally and speedily, and that stimulation should be tried. She was by this time unable to swallow, and it was found that enemata were not retained. At 2:45 p. m. the coma had deepened; pulse 138 and faint; temperature 107¾°. She died at 7 a. m. April 12th.

Unfortunately an autopsy was not granted. In the absence of satisfactory evidence to sustain any diagnosis, it was agreed to state puerperal septicæmia as the cause of death. If it was not that, what was it?

LOCAL SPASM OF THE WOMB, WITH RETENTION OF THE PLACENTA AND HEMORRHAGE.

BY J. McF. GASTON, M.D., Campinas, Brazil.

Within the past two months there have been under my care four cases of partial local contraction of the uterus, accompanied by retention of the placenta and attended with profuse hemorrhage.

Not having encountered any case of a similar character previously throughout an extended obstetrical practice, and the notices of this abnormal condition being very meagre and unsatisfactory, a brief statement of the facts observed, with the steps taken for the relief of the patients, may be of interest to the medical profession.

They were presented in the persons of females belonging to the better class of the English, German, American, and French population, on the 11th of June, 17th of June, 20th of July, and 6th of August, of the current year.

In the several cases, labor came on at full term and resulted in the birth of healthy children. The broad abdominal bandage was applied in all immediately after the separation of the child, and nothing unusual was remarked within a quarter of an hour afterwards. Profuse hemorrhage ensued in less than half an hour in three cases, and in less than an hour in the fourth case.

Upon instituting an exploratory examination, it was ascertained that the placenta was, for the quarter portion of its surface, free from the womb, and hanging loosely within its relaxed and flaccid walls, from which the blood poured out by the patulous vessels. In the meantime it was discovered that a small part of the placental substance was confined by the firm grasp of a very circumscribed layer of muscular fibres of the womb near the opening of the right fallopian tube. This peculiar spasmodic condition occurred in three of the cases under consideration, while the remaining one involved all the muscular development of the fundus of the womb, constituting a complete hour-glass contraction. A large portion of the placental mass was confined in this, while the remaining part being detached in the lower compartment of the womb, allowed a free discharge of blood from the utertine walls, which here, as in the above cases, presented a complete state of relaxation.

This hour-glass contraction differs from the others only in the greater extent of the muscular fibres of the uterine wall involved in the spasm. Each depends upon the same exciting cause—a partial adherence of the placenta attended by an extraordinary action for its dislodgement. This not being effected, a greater or less portion, in the several cases, became retained by a clonic rigidity of the circular muscular fibres of that part of the parietes, assuming the form of a pear-shaped sack.

The constriction at the lower part was such as to close firmly around the inclosed tissues of the placenta, and to make a cord-like ring which served as a line of demarcation from the lower flaccid division of the uterine cavity. The stimulus being thus concentrated upon the affected part, the remaining portion of the walls of the womb lost for the time all contractility, and under the influence of the previous dilatation of its tissues,

assumed a flaccid condition from which profuse hemorrhage ensued.

General contraction of the womb at the delivery, and subsequently noted at the outset, secured the detachment of the placental mass to a greater or less extent in the different cases; and yet some part in each being adherent, so that this ordinary contraction did not avail for its separation, a spasmodic action followed, by which this part was retained in a firmly contracted muscular sac composed of a proportionate section of the parietes of the womb.

The portion of placenta enclosed in this manner varied in three of the cases from the size of a hen's egg to that of a turkey's egg, while in the fourth it reached the dimension of a man's fist. In the former a hard, pear-shaped ball was felt through the abdominal wall to the right side of the umbilical region, and in the latter the much larger firm mass was perceived distinctly occupying a central position beneath the umbilicus.

Within the vagina, there was such a state of relaxation of the uterine walls that the hands moved freely in the cavity of the lower compartment of the womb, and the placental mass was found in three of the cases suspended by the constricted pedicle, while in the other it was grasped firmly near its middle point. In each instance the end communicated with the portion of the placenta below the constriction, and there was no discharge of blood from its fœtal extremity.

From the relaxed surface of the womb whence the placenta was detached, a free discharge of blood was flowing all the while, and three of the subjects were so prostrated within a short time as to lose the power of speech and of deglutition.

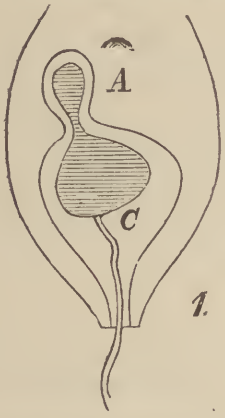
The hemorrhage was so excessive and so sudden, that measures of relief were immediately resorted to with a view to avert the impending fatal result.

The operative procedure instituted in the several cases was so similar, that a general description, with the accompanying rough sketches (see next page), may suffice to convey an idea of its utility.

In the figures, A and B indicate the two varieties of spasmodic contraction, while C and D represent the respective cavities of the lower relaxed compartment of the womb, with the portions of placenta and cord connected with the same.

The left hand being placed outside the abdominal walls so as

to grasp the hard mass made by the rigid local spasm of the womb, the right hand was passed within the relaxed cavity of



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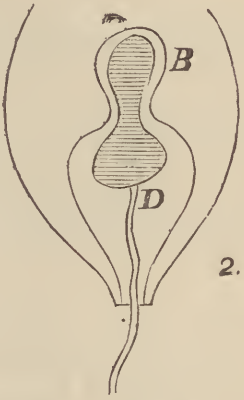

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the lower division of the womb, and the front finger was passed forcibly within the ring formed by the constriction of the sac upon the fractional part of the placenta. Subsequently the points of all the fingers of the right hand were brought into a conical shape, and steady pressure was made with their points directed towards this cavity, until the passage was greatly dilated, and the passages admitting in the respective cases from two fingers to the entire hand, the adherent portion of the placenta was separated from the inner surface of the sac or pouch formed by the contraction. The hand was then employed to overcome the rigidity in every part of the sac, and especially directed against the contraction of the circular muscles at the annular opening of this pouch, so as to bring them into proper relations with the general surface of the uterine wall.

The counter-pressure of the left hand over the exterior surface of the hard ball is essential, not only in the introduction of the front finger of the right hand from within, but also in the subsequent steps of detachment and dilatation.

The portion of the placental mass retained within the constriction was detached by the points of the fingers, and being withdrawn from the sac or pouch formed by the irregularity of the contraction in the uterine wall, the hand entire was then employed to dilate this constriction, and when it was entirely overcome the body of the womb was found to be undergoing general contraction, when the placenta was withdrawn. The hand be-

ing again carried into the uterus, verified the progressive action in the entire womb, and seeking to stimulate it further by gentle manipulations, the hand was soon closed upon by the uterine walls and perceived sensibly an expulsive action, and upon being withdrawn the hemorrhage ceased entirely.

The rigidity of the spasmodic constriction of the local muscular fibres was overcome with great effort and much pain to the subjects, which might have been relieved by chloroform, yet the flow of blood was so excessive and sudden that no time was obtained to resort to this anæsthetic appliance, though the article was at hand and spoken of to an assistant.

Another Case of Spasm of the Womb, with Retention of the Placenta, but without Hemorrhage.

A fifth case of irregular contraction of the womb came under my observation on the 7th of this present month of October. It was in the person of an American lady, thus corroborating the impression that females who have not become acclimated in this country are far more liable to this abnormal state than the native women, among whom no instance of it has occurred in my own practice, nor has any case been reported by others practising in this place.

This lady, as in the four cases noted in my previous report, belongs to the better class of the foreign population, and enjoyed generally good health during her stay of five years in this city. She has given birth to two children previously in this place without any unusual circumstance attending her confinement.

During the early months of her present pregnancy, it should however be observed, that considerable uterine hemorrhage occurred on two occasions. She took on each of these occasions fifty drops of laudanum, and repeated the dose within two hours, which was followed by a decoction of Peruvian bark and sulphuric acid, affording final relief, and the last three months of her pregnancy were not attended with any recurrence of the hemorrhage or the pains that had accompanied it.

Her labor was in all respects most favorable until the delivery of the child was effected; and as a preliminary step to the application of the broad bandage subsequent to the division of the cord, the hand was passed over the uterine region, verifying the regular

contraction of the womb at this period. In this case, as in all of the others, after the first instance of local spasm, I refrained from any grasping manipulation of the womb with a view to excite contraction; and the case was left so completely free from interference, that nothing could possibly have provoked this irregularity.

It should be remarked that at the commencement of the expulsive contraction of the womb, she experienced a sudden nausea with some retching and vomiting.

This gave indications of acidity, and she took a small portion of bicarbonate of soda with a little water, which gave her entire relief. With this exception, nothing occurred during the labor that could possibly influence the result.

For a half hour after the delivery of the child she was not disturbed by any examination, and experienced only the usual pains of regular uterine contraction for detachment of the placenta.

After a half hour had elapsed a digital exploration revealed that there was no progress towards expulsion of the placenta; but as there was no indication of hemorrhage or other untoward feature, an entire hour was allowed to pass without interference. At the expiration of this time, I proceeded to an examination for the purpose of ascertaining the cause of the delay in the detachment. Upon introducing the forefinger into the vagina, a border of the placental mass was found presenting at the orifice of the womb. Making a gentle effort to favor its expulsion, it was soon discovered that the other margin was firmly secured at the fundus of the uterus. Having in no instance used traction upon the cord under such circumstances, and being unwilling to risk laceration of the placental mass by efforts directed to the part that was available, I passed the hand entirely within the womb, and found the larger portion of the placenta already detached; but a segment of it, with a portion of the membranes, grasped in a sac-like contraction at the fundus of the uterus.

The lower and greater part of the walls of the womb were somewhat relaxed, and yet not flaccid as in the other cases that were attended with hemorrhage; but in view of the result in those cases, I was impressed with the fact that delay was likely to lead to greater relaxation of the unaffected uterine cavity below the stricture. Accordingly, dilatation was resolved upon, and finding the contracted ring very rigid and affording great

resistance to the entrance of the points of the fingers, I concluded to resort to the use of chloroform.

Having the article at hand, as is my custom in most cases of parturition, I directed a female friend of the lady who was in attendance to administer the chloroform upon a folded handkerchief, and with the hand still within the cavity of the womb I awaited the effect of the anæsthetic, to proceed with my efforts. So soon as my patient was unconscious, the points of the fingers brought together so as to give the hand a conical form, were passed steadily within the contracted ring by the side of the retained part of the placenta, and in the meantime the left hand was placed above the hard tumor which was felt as a knot or ball, corresponding in size and shape to an india rubber syringe of the capacity of six or eight ounces. Although my previous experience in overcoming these local spasms had required steady and long continued pressure, I hoped with the aid of the chloroform in this case, that the resistance would have been materially lessened; and yet it was necessary to use all the strength of which my arms were capable, in making pressure and counter-pressure to overcome the great rigidity of the spasmodic contraction in this segment of the uterus. It is very important that this circumstance should be duly noted, as those without practical experience might be induced to forego the extraordinary efforts which have been found necessary to rectify this abnormal state.

The pressure with the points of the fingers could not have effected the dilatation unless the counter-pressure had been at the same time maintained over the tumor by the left hand outside of the parietes of the abdomen, and I doubt whether an operator of feeble muscular power could have succeeded in the introduction of the hand within the sac.

This being effected, a portion of the placenta was found adherent, as in the other cases briefly reported, and was detached by passing the points of the first and second fingers between it and the uterine surface. Drawing this comparatively small segment of the placental mass down into the lower division of the uterine cavity, the hand was again carried into the sac formed by the irregular contraction, and by opening the hand and extending the fingers and thumb the complete dilatation was accomplished. Withdrawing the hand from the pouch, the walls of the remaining lower division were found to be undergoing a

general and uniform contraction, and then, seizing the placental mass in the hand, it was extracted without further difficulty. The hand being introduced again within the cavity of the womb, its parietes were found to be restored to the ordinary post-partum condition; and after removing some coagula that existed in the cavity, an expulsive contraction upon the hand was distinctly perceived, and the walls closed upon it as it receded from the cavity.

No unusual hemorrhage attended the operation, nor was there any subsequent discharge of blood beyond what is observed in ordinary cases of labor.

This forcible dilatation gave no pain, of course, under the influence of chloroform, nor was it followed by any undue tenderness over the uterine region subsequent to this operation for extracting the placenta.

In not one of these five cases has there been any indication of peritonitis or other untoward puerperal phenomena, and hence no unfavorable consequences should be apprehended from this procedure in any similar cases that may occur to others.

The only point that seems questionable in this case, is as to the necessity or propriety of resorting to such a forcible measure, when there was no hemorrhage or other grave indication for this procedure, so soon after the birth of the child. Taking the view, that in each of the cases there occurred at the outset general contraction of the womb, which led to the separation of the greater part of the placenta, and that a part remained adherent which led to a spasmodic action in the adjacent wall of the uterus, thus destroying the equilibrium in the nervous distribution to its parietes, and the subsequent relaxation of the lower and larger compartment, I infer that this relaxation would have been manifested in a manner to lead to hemorrhage at a later period, and that the dilatation restored the equilibrium and precluded the further relaxation and consequent hemorrhage.

In any similar case, I would not therefore wait more than an hour after the birth of the child for proceeding with this means of relief.

Additional Remarks upon Local Spasm of the Womb, with Retention of Placenta and Hemorrhage.

As this abnormal state of the womb involves the gravest prac-

tical issues, it is believed that the expedient resorted to in these cases, by extraction of the placenta, may serve as a useful guide to others in managing similar local contractions of the parietes of the uterus. Having presented a brief outline of the characteristics of this post-partum condition, it may be satisfactory to those engaged in this branch of practice to give some details of the several cases.

In one case it was the first labor, in one the second, in one the third, and in one the fourth; so that nothing in common existed in this respect. Two of the cases were delivered on the left side, and two on the back, thus precluding any influence from position. The duration of labor varied in the four cases from five to thirty-six hours; and yet in none of the cases was there any deviation from a natural head presentation, and the progress was uniform and favorable in all the cases.

Chloroform was inhaled by the English lady during the last expulsive pains, and by the American during each pain for the two hours previous to the birth of the child, while it was not resorted to in the other cases at any period of the labor.

The labor of the German woman having been protracted for 24 hours when my services were required, she was given the infusion of three drachms of ergot in the course of three hours, and with salutary effect in exciting the uterine contractions. The French woman was left entirely to nature, her labor being regular and expeditious.

The habits and customs of the different subjects were active, and modified by the various occupations and modes of life in the several nationalities represented.

Upon delivery of the child in two of the cases a gentle grasping manipulation over the uterine region was resorted to, while in the remaining two this was purposely omitted, yet the hand being passed gently over the abdomen, in the application of the broad bandage, gave the impression that general contraction of the uterine walls existed at the outset. Hence it is inferred that the irregularity was a secondary, and not an immediate sequence of the expulsive act.

The placenta was adherent to a greater or less extent in all the cases, and doubtless served as the exciting cause of the irregular local spasmodic contraction, yet this cannot avail to explain the origin of the difficulty, since all are aware that par-

tial adhesion of the placenta exists in many cases without leading to this result.

The rarity of this local spasm of the walls of the uterus, as observed generally by obstetricians, and its occurrence for the first time in the experience of the writer in four cases within so brief a period as two months, indicates some common cause, and yet nothing, apart from the fact that none of the subjects are natives of Brazil or have resided for any considerable time in the country, appears as a common element of their condition. The climatic influence is not so peculiar as to induce any marked changes in the female constitution of foreigners, and we have many other women of the same nationalities who have borne children in this country without any similar consequences. As no instance, however, of this abnormal condition has come under my observation among the Brazilian women, I am inclined to the opinion that during this period there has existed some special influence of locality or climate upon the nerve centres of these subjects, which has caused this deviation from the uniform post-partum contraction of the uterus.

The only view that offers a plausible explanation of this abnormal state is that of reflex action, and we cannot discover anything in the concomitant circumstances to account for the result, so we must look for its source in some modification of the nerve centres from a peculiar susceptibility of these unacclimated females.

Unfortunately we have no record of the changes in the atmosphere at this particular period, which might aid us in clearing up the difficulty attending a solution of this question; and the only observation I have to make is that the cases occurred during a season comparatively free from moisture or great heat, being that of the most equable temperature known in this intertropical region of Brazil.

The transient character of the spasm treated alone by mechanical means, affords some grounds for referring to a derangement in the nervous distribution to this part, and the excito-motory function may have become implicated either by some cause operating upon the entire nervous system, or from some local influence propagated from the point of adherence of the placenta to the spinal column, and thence reflected upon the contractile tissue of this part of the womb.

Without going into further details of this hypothesis, it is pre-

sented for the consideration of the medical profession; and observations already made, or that may be available to those engaged in obstetric practice, may serve to elucidate this obscure point.

With the exception of some reactionary fever in consequence of the great prostration from the profuse hemorrhage, none of the cases presented any notable effects from this peculiar abnormal state, involving all the tissues of a circumscribed segment of the uterine walls; and there were no indications subsequently of any irregularity in the configuration of the organ, nor was the recovery attended by anything unusual.

Those seeking information in regard to this irregular local contraction of the womb will doubtless be surprised, as I have been, to find so little that is satisfactory on this point in the works of American and English writers on obstetrics. Some have even doubted the existence of hour-glass contraction of the womb, and the marked relaxation of the portion of the uterine walls not implicated in the spasm, which was a striking feature in these cases, is not even adverted to by any author accessible to me. Bedford, in his flippant style, disposes of the subject in a very summary manner, and does not seem to be aware of any other form than that of the shutting in of the entire placenta by a ring-like closure of the circular fibres of the uterus upon the cord, creating consternation to the inexperienced.

Barnes, on the other hand, presents some quite judicious remarks on "encysted" placenta, and though he erroneously attributes it to contraction of the os internum uteri, he gives a theoretic view of the arrangement of the muscular fibres of the womb which implies the existence of local contraction of circumscribed portions of the uterine walls, such as I have reported.

Of the various obstetric works consulted on this subject, Cazeaux goes more into detail as to the various forms of this deviation from the normal state of post-partum uterine contraction. An outline of what is known in regard to this very extraordinary condition will be found in his work, commencing at page 887, under the heading—Contractions irrégulières du corps (enchatonnement de M. Guillemot). Here we find concisely noticed both the complete and incomplete entrance of the placenta into the sac formed by the local contraction, as well as the different modifications of this irregularity, and also the measures of treatment by dilatation and separation of the placenta.

There is also a reference to this irregularity of uterine contraction in the book on obstetrics by Dr. V. Labois, recently issued in the French language. This not only gives a correct idea of these deviations from the natural condition, but the work treats at considerable length of the structure and arrangement of the muscular fibres of the uterus, calculated to throw light upon the mode in which these partial spasms may affect certain parts of the womb.

SPASMODIC RETENTION OF PLACENTA.

I have to report four additional cases of uterine spasm with retention of the placenta; two being in the persons of German females, and the other two in native Brazilian women.

Having met with this irregular contraction previously in six cases, one only being a native and the others of foreign birth, I was very much inclined to consider that there was something operating upon those not acclimated to the country which induced a predisposition to this abnormal condition. But with the occurrence of two other cases in the persons of native females, there cannot any longer exist a reasonable basis for such a view, and the explanation for the large proportion of these irregular contractions must be sought in circumstances influencing the female organism generally in this country, and yet remaining without a satisfactory solution or reasonable hypothesis.

On the 27th of June of the present year, I was called out about four miles from the city to a German woman, who had given birth to a healthy child on the day previous, and found her with the placenta retained by a rigid partial contraction of the womb. The upper central portion of the uterus was firmly grasping a portion of the placental mass, while the remaining large part was lying loosely in the lower relaxed division of the uterine cavity. The stricture was rigid, and resisted the passage of the finger carried up by the side of the confined portion of the placenta, and it was only by securing the hard tumor formed by the spasmodic contraction, with the left hand placed over the umbilical region, that the points of the fingers could be made to penetrate within the ring-like closure of the circular fibres of the womb at the point of spasm. As there was no chloroform at hand, the effort to introduce the fingers and dilate the contracted segment of the womb was attended with great suffering to the

woman; and although I was apprehensive of the subsequent effect of alcoholic stimulants, it became necessary to administer freely the rum of the country, to enable her to bear the somewhat protracted force that was requisite to overcome the rigidity. Having overcome the cord-like resistance, the cavity of the pear-shaped sac was penetrated with some difficulty by the hand, and the portion of the placental mass corresponding to the size of a turkey's egg was brought down into the lower relaxed segment of the womb. The hand was then again carried up into the contracted segment, and by forcible extension of the fingers the wall of that part was dilated until the spasm was overcome, and on being brought down the lower segment, that had been previously quite flaccid, was found to be undergoing a general contraction, so that the placental mass with the hand covering its surface were gradually thrust toward the outlet. Thus the delivery of the placenta was effected by the coöperation of the general and regular uterine contraction, and all danger of hemorrhage or other bad result was effectually obviated.

The peculiar restoration of general contraction upon the dilatation of the spasmodic stricture is a feature of great practical importance; and although the retained portion of the placenta could be brought away without complete dilatation of the sac in which it is enclosed, it is evident that the difficulty existing would not be surmounted by simply extracting the placenta, but the local spasm should be overcome, with a view to induce general contraction of the uterine fibres and thus restore the organ to its normal state.

A feature of interest in this case is, that twenty-four hours had elapsed after the birth of the child and there was no indication of any relaxation in the irregular contraction. On the contrary, there was greater difficulty in overcoming the rigidity of the spasmodic action of the uterine fibres than had been experienced in the operations within an hour after the delivery of the child. Whether relief might occur without interference is doubtful, as in one of my previous cases two days had elapsed after the birth without any relaxation, and then, even incipient indications of peritonitis and fever, that would not have warranted further delay in the operative procedure. Forcible dilatation is effective and safe, when delay is precarious and dangerous.

On the 21st of July, being less than a month after, I was called

to a Brazilian, in the city of Campinas, who had been delivered at full term of a child six hours previous, and the placenta was found to be retained by what is ordinarily known as hour-glass contraction of the womb. Nearly the entire mass of the placenta was included within the upper constricted segment, while a small part with the cord protruded into the lower relaxed segment of the uterus.

Having verified the existence of this abnormal condition, and there being no hemorrhage, or other cause for proceeding immediately to the necessary operative procedure, I sought another practitioner with a view not only to have his coöperation, but to avail myself of his evidence in corroboration of the existence of this irregular contraction, so rare and yet occurring so often within my sphere of observation within a comparatively brief period. This being the eighth case of spasmodic retention of the placenta that has occurred in my practice since January 11th of the past year, within little more than twelve months, and others not having encountered similar cases, I naturally desired the examination and supporting testimony of another medical man, as to the fact observed in this deviation from the normal standard of the uterine contraction.

Dr. Germane Melchert having made the requisite examination, and being satisfied of the existence of the hour-glass contraction retaining the larger portion of the placental mass, concurred with me in the necessity of proceeding with the dilatation of the spasmodic stricture for the purpose of extracting the placenta. The administration of chloroform was entrusted to him, and so soon as the woman was under its anæsthetic influence, I proceeded by first introducing the points of the fingers within the lower contracted ring. The resistance was such that the counter-pressure of my left hand from without over the fundus uteri was inadequate, and it was only with the assistance of the hands of Dr. Melchert, in making counter-pressure, that I was enabled to force my right hand, with the fingers spread around the neck-like contracted part of the placenta, and reach the fundus of the uterus. This being, however, effected under the influence of the chloroform, the woman was saved much suffering that must otherwise have resulted from such great force in overcoming the rigidity of the circular muscular fibres of the womb.

I have a practical object in view for the better understanding of the difficulty encountered in this operation, and have to im-

press the importance of the resort to the anæsthetic influence of chloroform in all similar cases.

After the hand reached the cavity in which the placenta was retained, there was but little difficulty in carrying it around on all sides and above the mass, thus verifying that it was not adherent, but simply retained by the spasmodic action of this division of the uterine fibres, that involved a much larger portion of the walls than in any previous instance that has fallen under my observation. As was remarked at the outset, nearly the entire mass of the placenta was grasped firmly in the sac-like contraction of the fundus of the womb, and secured by an annular stricture at the lower part. By the introduction of the hand, this ring was dilated so that it only was necessary to make steady traction with the hand securing the most constricted portion of the placental mass, to effect its complete dislodgement and extraction from the cavity of this pear-shaped sac. The spasmodic clonic contraction of the fundus having been overcome, and the sac being evacuated, the entire walls of the uterus became uniformly contracted, and the active expulsive force was manifested in the passage of the placenta with the hand through the vaginal canal and from the outlet of the vulva. After the complete delivery of the placenta the hand was again introduced, and in removing some coagula, verified the uniform and regular contraction of the entire uterine structure, closing down firmly upon the hand as it was withdrawn.

There was no subsequent hemorrhage, as there had been none before the operation, and very little during the process of dilatation of the rigid spasm. The recovery of the woman was satisfactory, and without anything unusual in the post-partum condition.

As these two cases were only seen after the fact of retention of the placenta by irregular contraction of a segment of the uterine fibres was fully established, I cannot present any details in regard to the conditions under which they were developed, but simply the means used for their relief.

September 13th I received an urgent summons to go ten miles from the city to treat a German woman, who was reported to have been in labor for two days with a first child. Upon arriving about eleven o'clock in the day, the mouth of the womb was found fully dilated, and the head of the child pressing firmly against the rim of the pelvis by a clonic contraction of the

uterus, causing a complete retention of urine. The bladder was enormously distended, presenting a protuberance in the hypogastric region that indicated measures for immediate relief. Unfortunately, in the haste of my departure and the putting together of my instruments for an obstetric operation, a catheter was omitted. The circumstances did not admit of delay to send back to the city, and being in a section where small cane was to be found, I sent to the woods for a joint of this, with which I prepared a very good substitute for a catheter. Upon attempting its introduction, there was no difficulty in entering the meatus urinarius, but the canal was so much elongated by the lifting up of the distended bladder, and the pressure of the head was so firm and constant, that even with my front finger introduced into the vagina and supporting the head of the child it was impracticable to reach the bladder while the woman rested upon her back. I determined, therefore, to change her position to the left side, and with the cane catheter in the urethra and the fingers of my left hand securing it, the right hand was employed in pressing upwards upon the impinging part of the head, while she made the change from the back to the left side. Much to my relief, the rude instrument glided into the bladder during the transposition, and I had the satisfaction of drawing off at least half a gallon of urine and completely evacuating the bladder. As I consider the surgical expedient resorted to on this occasion of much practical importance, the instrument used will accompany this paper with the request that it be deposited in the obstetric collection of the University of Pennsylvania, that it may serve as a hint to others who may be reduced to similar straits in obstetric practice.

As the sequel of this case presents another instance of spasmodic retention of the placenta, its details will be given. The history of the various stages of the labor may suggest something to others that has not occurred to myself as a clue to explain these unusual cases of irregular contraction of the womb, and I trust that obstetric practitioners may give their attention to the facts observed in nine individuals of various nationalities in this locality. If it be practicable to arrive at any satisfactory explanation of the cause of this great deviation from the normal post-partum condition, some measure of prevention or of relief short of direct dilatation may be available. As yet, nothing has occurred to me that served either to avert the difficulty, or to

redress it when presented, except the dire recourse to a painful and laborious operation by the introduction of the hand for the purpose of dilatation of the spasm and extraction of the placenta.

But let us recur to the state of the woman. After giving relief to the bladder she was for a time composed, and gave no signs of active contraction of the womb. Upon inquiry, it was ascertained that no operation of the bowels had taken place for two days; and with a view to excite the uterine contractions, I proposed to give her a purge and to administer an injection. But no castor oil was to be found in the house or in the neighborhood, nor could a syringe or even a dry bladder be discovered. Learning, however, that there was some oil of palma christi, such as is used for burning in a bed lamp of the country, a half a teacup of this was mixed with some orange-juice to disguise its revolting taste and smell, and given to the patient. Although it was repugnant to her sensibilities, she succeeded in swallowing it. The force of her will could not, however, control the stomach, and it soon returned, thus losing the only chance for a prompt action upon the alimentary canal. Hoping that the vomiting itself might excite uterine contraction, the result was awaited for half an hour without any effect.

In setting out, among other things provided ergot was included, and an infusion of one drachm (this being in Brazilian scale of weights 72 grs.) in a pint of boiling water was prepared. Of this half a teacup was given at first, with intervals of fifteen minutes, and the uterine action being fairly established, the interval was lengthened to half an hour. The clonic rigidity of the muscular fibres of the womb was soon changed into a regular recurring uterine contraction, and the head became soon engaged in the superior strait.

The use of the ergot was commenced at 2 o'clock p. m., and by 4 o'clock the head had descended so that the bag of water was presenting at the inferior strait with very little apparent progress by the continued repetition of the pains. It was then considered proper to rupture the membranes, whereupon there was a profuse rush of the waters, and the patient for a time remained quiet, as is usual after the discharge of the water. The use of the ergot being continued, and the woman encouraged to get up and walk around the room occasionally, the progress was very satisfactory. She had taken from the commencement an occasional glass of wine, and this was now given in larger por-

tions so as to stimulate her flagging powers, so that by five o'clock the expulsive action of the womb was decided and effective, bringing the head at each recurrence of the pains to press against the perineum.

Perceiving that the rigidity of the external parts was likely to be a serious obstacle to the farther progress of the labor, I had recourse to the small stock of obstetric articles that had been brought with me from the city and gave chloroform to her freely. As I had had occasion to observe in such cases previously, the uterine action was not lessened, while the soft parts became more relaxed, and though yielding more and more at each recurring pain, the delivery was delayed for half an hour owing to the constricted aperture of the vulva. The head had passed entirely through the bony canal of the pelvis, and the vertex was exposed at the vulva under the pubis, while the chin was in advance of the os coccyx, and being thus enveloped by the perineum, was arrested for a considerable time, though the pains were recurring at regular intervals. In this contingency, with the woman completely under the influence of the chloroform, a gentle traction with two fingers introduced in the anus and at the same time with the other hand the strictured head in front was gradually forced back from the protruding vertex, when the expulsive contraction of the womb effected the delivery of the head.

The chloroform was now withdrawn, and there was a lull in the contraction for a short time, and upon its recurrence the delivery was completed of a dead child.

After fruitless efforts at artificial respiration, and division of the cord that presented no pulsation, the child was removed, and my attention was directed again to the mother. She had now recovered from the effects of the chloroform, and the womb was found to be contracted firmly but evidently very much above the ordinary position, which led me to suspect that there was some irregularity. But as there was no unusual flow of blood I awaited a half hour, at the expiration of which an examination per vaginam was made, and as I had anticipated, revealed an hour-glass contraction of the uterus. The entire placenta was included in the upper segment of the womb by a rigid spasm, that closed it in as if a cord had been passed around the walls of the uterus at the line of division, while the lower segment was in a complete

state of relaxation, so that the hand was moved freely within this cavity.

Upon making an effort to pass the points of the fingers within the constricted ring, it was attended with so much discomfort to the patient that I directed the chloroform to be again administered, and awaited its anæsthetic influence. There was no perceptible change in the spasmodic stricture from the effect of this agent, but as the sensibility was annulled, the effort at dilatation was resumed. Finding that the force requisite for the introduction of the fingers from the lower cavity was such that counter-pressure with my left hand over the umbilical region was not sufficient, the husband was summoned to aid in the counter-pressure with his hands placed on the uterine tumor.

This counter-pressure being a very important element in the operative procedure for securing the rigidly contracted upper segment of the womb against causing tension upon the lower relaxed portion, in the use of the force necessary to penetrate the stricture I would inculcate the importance, in every case, of having a competent assistant in making firm support to the uterine tumor; and yet the operator's hand should at the same time be in contact with the abdominal wall immediately over the placental mass, so as to regulate the direction of the pressure, while the right hand penetrates the stricture. The amount of force requisite to carry the hand within the cavity of the spasmodic contraction is such that were it not resisted firmly, such tension would be made upon the lower segment of the womb and the vaginal walls, that their tissues might be injured, or on the other hand, the placental tissues would be thrust up against the diaphragm, so as to cause serious consequences. I feel assured that no one that is called upon to work forcible dilatation of the neck of the womb with the hand brought into a conical form would be warranted in employing the amount of force that I have found requisite to overcome some of the cases of abnormal spasm of the circular fibres of the uterus. Regarding this operative procedure as safe and effective, I did not hesitate in the case under consideration to employ all the force that was necessary to enter the constricted cavity; and when the hand was once introduced, there was comparatively little difficulty in passing the fingers above and on all sides of the placental mass. It was evidently detached and retained within this sac-like cavity by the spasm in the circular fibres of the uterus closing below

it. As I have intimated elsewhere, the exciting cause is doubtless local adhesion of the placenta to the inner wall of the uterus, which induces an extraordinary effort to dislodge it. This being ineffectual under the general contractility of the parietes of the uterus leads to spasm, and the circular fibres fasten upon a part or the whole of the mass of the placenta, so as to preclude its dislodgement even when separation has taken place.

The surface from which the placenta has been detached being included in the spasmodic contraction, no blood escapes, but in case it falls in part outside, and constitutes a portion of the relaxed walls of the lower segment, we may have hemorrhage, as occurred in two of my early cases, already reported.

The orifice to the cavity where the placenta was retained being properly dilated, there was resistance to the withdrawal of the entire mass with the hand, and it being left for the moment in the lower division of the womb, the hand was again carried into the sac, and its lower margin was further dilated so as to bring it into proper relation with adjoining parts below the former stricture. The entire uterine structure now seemed to assume its normal contractility, and the expulsive action was evident in withdrawing the placenta with the hand by the vaginal outlet. This closed very satisfactorily my ninth operation.

This woman was doing well three days after the extraction of the placenta, and had no further retention of urine. Though the distension was so enormous as to induce apprehension of a atonic relaxation of its walls subsequent to the delivery, nothing of this kind seems to have occurred. There was no hemorrhage either immediate or secondary in this case, nor has there been any hemorrhage subsequent to the removal of the placenta in any of the cases that have come under my observation. The contraction of the uterine structure being general and thorough after the dilatation of the spasmodic state and the removal of the placenta, there is no more cause to apprehend hemorrhage than after an ordinary regular delivery.

Whether any general or local medication could be adopted to obviate or relieve this spasmodic condition of the uterine fibres, is well entitled to the consideration of obstetric practitioners; and as the experience of others may present something available to this end, it is hoped that any practical observations that have been made, or that may be made in future, will soon be presented to the medical profession through the columns of this Journal.

One feature that has been uniform in the cases observed, is the absence of the pain which ordinarily attends the contraction of the womb after the delivery of the child. The general rule is that when the contraction leads to detachment and expulsion of the placenta, there is well-defined pain, but in those cases of partial contraction in spasm retaining the placenta, there has been no complaint of pain. In this last case my attention was attracted to this circumstance, and it is a peculiar, if not a pathognomonic indication of the existence of this spasm.

In other cases of cramp or spasm, the pain is a prominent element, and yet in this local uterine spasm there has been no complaint of even discomfort. This may serve as a hint to refer this abnormal condition to the organic system of nerves, and some new light may be shed upon the experiments and theories in regard to the proper nerves of the uterus.

The remote or proximate cause of these irregular contractions of the uterine fibres is the great desideratum for obstetricians; and were it possible to ascertain this, we might hope to apply some rational measures of prevention, or some corrective when developed.

There is no common element, except that of climate, that can be considered as operating upon all the subjects, and even this is not by any means uniform, as instances have occurred in the different seasons of the year.

It is not confined to the individuals of the city or of the country, in those of sedentary or active habits of life.

Neither does it make its appearance exclusively among those nursed in ease and with delicate constitutions, or among those of different characteristics.

The influence of nationality cannot avail anything in view of the fact that two out of the nine cases are native women.

The mode of management during the labor and delivery of the child has been so varied as to set aside all reference to any explanation from this source. Some have occurred where women were in charge of the cases, leaving nature to take its own course; and in some of my cases I have purposely observed masterly inactivity from first to last.

They have appeared with and without medication, with widely varying food and drinks at the time of the confinement, and with diversity in the mental and physical impressions.

If it was at all within the range of probability that any com-

mon deterioration of food, such for instance as the spurred rye, could enter into the calculation, I would be disposed to look to this for an explanation. But this is entirely precluded by the fact that some of those affected did not use flour of either rye or wheat, and lived upon corn meal or farina made of corn or the mandioca.

The coffee of the country is the only article used in common by all who have been subjected to this irregularity, and perhaps we may include also the sugar. These articles, however, vary likewise very much in different qualities and different modes of their preparation, so that it is scarcely a warrantable inference that these can be the source of the difficulty. It should not escape our notice that all classes and conditions of women in this country use coffee with sugar to a much larger extent than in the United States, and indeed it is a weakness of the sex among foreigners as well as natives to drink coffee early and late, with frequent draughts during the day.

Without any solution of this problem I leave my colleagues to discover the unknown quality.

On the 20th of September, my attendance was requested to a young Brazilian woman confined with her first child. She had been complaining all the morning, but being occupied with other cases I did not answer until 11 o'clock, when I found a midwife with her, and the case progressing favorably for a speedy termination. The neck of the womb was already dilated, and the vertex was engaged in the superior strait, the waters also having come away very recently. Her bowels had been properly evacuated and the urine was discharged spontaneously, so that all seemed to be natural and regular; and the woman midwife was continued in charge of the patient with instructions to give me notice when the head approached the outlet. Instituting another examination at half-past 12 o'clock, the head was found to be entirely engaged in the passage with the vertex presenting at the vulva, but not yet forcing down the perineum. Under these conditions I ventured to go into another room to breakfast, as my time had been so engrossed as to prevent my eating up to this hour. But I had not concluded the meal, when a messenger came to announce that the labor was about to be terminated. Hurrying to the bedside the head was found already expelled, and another pain sufficed to dislodge the body and inferior extremities of the child, which was sound and vigorous.

After waiting a half hour without any evidence of the pains that usually attend the expulsion of the placenta, an examination revealed that the fundus of the uterus was contracted into a hard tumor, and upon introducing the hand into the vagina the greater part of the placenta was discovered to be lying loose in the lower segment of the womb, while a small fragment was retained in the contracted sac. But as the constriction was not yet completed, a slight twisting motion sufficed to detach the placenta. The orifice of this sac was subsequently dilated with the points of the fingers, but the general contractility of the womb was not noticed at the moment. On instituting a special examination next morning the entire uterus was found to be uniformly contracted, and the patient has not since presented any unusual feature of the post-partum condition.

This result satisfies me that in any case of suspected spasmodic retention of the placenta, it would be advisable to proceed to its detachment within half an hour after the birth of the child.

Case of hour-glass contraction of the womb reported by Dr. Melchert, September 23d, 1876.

He writes as follows: "Within a few days I was called to attend a German woman who had been delivered of a child about an hour previous to my arrival. It was dead-born and gave evidences of the commencement of putrefaction. The mother calculated that it came at the termination of the seventh month of pregnancy.

"Shortly after the expulsion of the child a profuse uterine hemorrhage came on; and upon examination there was found to exist hour-glass contraction of the womb with complete retention of the placenta.

"In view of the great loss of blood, the use of chloroform was not thought expedient. Introducing the hand within the uterus, it was found in the middle to be entirely closed, so that it was with great difficulty the index finger could be introduced by the side of the umbilical cord. The irritation of the womb increased the spasmodic contraction to such an extent that it was only at the expiration of ten minutes of constant effort that the second finger could be made to enter the strictured part. With these two fingers dilatation was gradually effected so as to admit the hand into the cavity above.

"The fundus of the womb was completely relaxed, with the placenta adherent in a considerable part of its surface, and so intimately, that it was with much difficulty that it could be separated with the fingers.

"After extracting the placenta the womb contracted regularly, and the hemorrhage entirely ceased."

It being made known to me that this case had occurred under the observation of Dr. Melchert subsequent to his examination of my case, it affords me satisfaction to present the above brief notice, translated from his communication on the subject. If he is not misunderstood, the statement indicates a condition entirely different, as to relaxation of the fundus of the uterus and the adherence of the placenta, from the facts observed in my cases of rigid contraction of the part involved and the separation of the placenta from its attachment to the wall of the uterus, though secured firmly by the spasmodic stricture.

It is evident that the dilatation was attended with the same salutary results as in the cases that have come under my care, and this should be resorted to without delay in all similar accidents.

A Case of Irregular Contraction of the Womb, with Retention of the Placenta, in a Brazilian Female.

Previous to this case, I have reported through this Journal six cases of uterine spasm, with retained placenta, in women of foreign birth, and inferred from its non-appearance among the native women that there might be some special influence operating upon strangers to produce this result. This impression is set aside by the appearance of a case identical in many respects in the person of a Brazilian woman, and one in that class of society whose manners and customs, with the habits of life, could not in any form identify her with those of foreign birth.

On the 15th of May I was called to see a Brazilian female, of twenty years of age, who had been delivered two days previously of her first child, and without hemorrhage or unusual consequence, excepting that the placenta was retained and the abdomen was swollen and sensitive to pressure.

There was already fever and restlessness, with considerable discomfort in the abdominal region, and I felt some misgivings about proceeding to any step for removing the placenta without

some measures of depletion. I was, however, informed that she had been purged with castor oil, and I was apprehensive of bloodletting from a prevailing typhoid tendency in the city, so that I resolved upon an exploratory proceeding. The left hand was used, as being more convenient in regard to her position in the bed, and after anointing it with olive oil, was passed, with difficulty and with considerable pain to the woman, through the vagina and neck of the womb into the cavity of that organ.

In entering the womb the points of the fingers came in contact with a dependent part of the placenta, and tracing it upwards, reached a portion that was constricted by a local spasm of the uterine wall almost exactly in the middle of the fundus of the womb. A large proportion of the placental mass was hanging loosely in the space below afforded by the dilatation of the flaccid walls of the much larger segment of the womb that remained unaffected by the spasm. Within this space the hand could be carried freely around the free portion of the placenta, and it was easily determined that it was not a case of local adhesion simply, but an instance of irregular contraction securing a segment of the placenta within its grasp, which could only be relieved by dilatation of the hard and resisting cord-like ring that retained it firmly in this position.

Pressing the right hand upon the protuberance of the womb in the umbilical region of the abdomen, the front finger of the left hand was thrust into the contracted part by the side of the placental tissues; and subsequently other fingers were introduced, with considerable suffering to the patient, until the dilatation was effected, and the pear-shaped sac was found to contain a fragment of the placenta with its membranes, but not adherent. With a slight tractile effort the contents of this abnormal cavity were removed, and the entire placental mass was immediately brought out with the hand. Upon returning the hand within the cavity of the womb, it was found to be already undergoing uniform general contraction of the walls that had been in a state of complete flaccidity, and as some coagula had formed in the course of the previous manipulations, they were expelled with the hand by the active uterine contraction. This general contraction occurred in this case after fifty-eight hours of duration, upon the forcible dilatation of the local spasm, just as it had done in those cases operated upon within an hour after the delivery of the child. I infer from the absence of hemorrhage, and

from the tactile exploration of uterine surface of the womb, that the part to which the placenta was originally attached was entirely shut in by the local contraction, and it was only after the temporary opening of this sac-like cavity that the blood issued that produced the coagula to which reference is above made.

That there was no indication of relaxation in this local spasm for such a length of time, serves to strengthen my conviction that no time should be lost in remedying this difficulty when found to exist.

CONTRIBUTIONS TO THE TREATMENT OF PULMONARY PHTHISIS.

(Read before the N. O. Medical and Surgical Association, May 5th, 1877.)

BY DR. W. GLEITSMANN,

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The object of this paper is not to enumerate all the remedies used in the treatment of Phthisis, only those which my own experience and that of others have shown to be of value to phthisical patients.

When we consider the vast number of invalids who leave their homes for health, we naturally ask: What conditions should determine them in their choice of a health resort? It may be comparatively easy to advise in a single case, yet even then we may doubt if the patient might not improve more rapidly under different medical, hygienic, or climatic treatment; but when we must decide where to send a number of invalids, the question becomes complicated. We need not go to the old world, to Davos (Switzerland), buried in the snow five months of the year, to the Riviera, to Cairo, in order to see invalids wintering under the most extreme climatic conditions—we find them scattered in our own country through almost every degree of latitude and longitude, in California, Colorado, and the western territories, Florida, and the Southern States, Minnesota, and the Adirondack Mountains. Each region claims peculiar advantages, and the busy practitioner, who has not the time or does not care to seek the truth through the abundant phraseology of the publications

of different health resorts, is often amiss when called upon to make a proper selection. A climatic association, as proposed by Dr. Chas. Dennison,* would to a great extent overcome this difficulty, but at present we are not so far advanced as to say positively that a certain climate is suited to a special class of consumptives. There are other essentials to the improvement of invalids besides climate, and these are frequently lost sight of. To draw attention to some of these, and to the relative value of certain climatic factors, is the object of the present sketch.

That consumption, at least certain forms of it, can be cured, is to-day scarcely doubted by any advanced physician. We even see cures in the most heterogenous climates, and sometimes under the most anti-hygienic conditions. Though we may see a consumptive improve in spite of improper treatment, of deficient, bad nourishment, of unhealthy accommodations, we would nevertheless hesitate to recommend a patient to live under the same circumstances. Dr. Brehmer, in his book on Chronic Consumption, cites a very instructive case. A large landowner called on Dr. Stokes, of London. Having examined him, Dr. S. consulted with his family physician, and they decided that nothing could be done for him, and advised him to go home. A year and a half afterwards a healthy-looking man, weighing at least 12 stones, entered the doctor's office with a very sarcastic expression, and asked him if he recognized him. The doctor said that he did not. Then the gentleman told him that he was the same man pronounced incurable 18 months before. The most minute examination failed to reveal any symptoms of the disease. Questioning him, the doctor found that his patient, thinking that he must die, had lived as when in perfect health, eating and drinking of everything on the table, and taking his milk-punch regularly, generally seven glasses a day. He occupied himself duck shooting whenever he felt strong enough. When the doctor said, You must have wet your feet very frequently, he replied: I did not take much care of my feet, for I often waded through the water up to my hips four or five hours, following up the birds on a fine winter's day.

It is therefore of the greatest importance to learn, not where or how some patients may have been cured, but where and how

* The Best Welfare of Invalids, by Charles Dennison, M.D., Denver, Col. 1875.

they are most likely to be cured. The requirements of places which offer patients a chance for improvement or recovery must be manifold, and are not of so simple a character as might be expected from the great number of places which advertise themselves as health resorts. In enumerating climatic conditions, we find as the main factors of climate: temperature, barometric pressure, humidity of the atmosphere, and mostly dependent from these three a number of others, as for instance, ozone, electricity, insolation, wind, rain, purity of the atmosphere, etc.

Great stress is laid on equability of temperature. Although we must acknowledge that places with high, and especially sudden daily ranges are not suitable localities for consumptives, there is nevertheless a certain degree of range desirable and wholesome. A daily range of 20 to 25 degrees often takes place, and no physician would advise patients to stay in the house because the morning or evening temperature is 25° lower than the temperature at noon. A light overcoat fully equalizes the difference, and patient and physician are satisfied and not afraid of the ominous "taking cold." Why do we not think and act in the same way when the difference, instead of falling upon one day, takes place on two succeeding days? We are not afraid of a daily range of, for instance, 25°, but when the following day is cooler, patients are apt to stay in the house on account of the "great change." Can a difference of temperature which is considered harmless if occurring within 12 or 14 hours, be injurious when the interval is 24 hours? Does not a light coat prevent the possible ill effect here just as well as in the first instance? If we exercise care in dressing ourselves, ranges like the above cannot injure us.

A similar misconception exists in regard to the influence of cold air and night air on consumptives. Iceland and the country round Orenburg enjoy immunity from phthisis, and both have very cold climates. The mean annual temperature of the first is 40°, of the second 37.7°; the mean of the coldest month is 28.4° and 7.5° respectively. Every year patients winter in very cold regions with benefit; and in Europe it is quite popular to send them in winter no less than in summer to health resorts in elevated regions, the temperature of which is colder than that of the lowlands in the same latitude or of the Southern resorts. The conviction is general in Europe, that a consumptive needs something more than relief of symptoms and prevention of fresh

injury. His treatment must be active; his functions must be properly stimulated, he must acquire power of resistance, which warm air, because enervating, cannot give, but which is gained in the cool air of elevated regions—points which are more fully discussed in another essay of mine.* Very few people consider that in Southern resorts east of the Mississippi the thermometer frequently falls below the freezing point, that there are occasional snow storms, that these climatic changes are keenly felt by invalids, enervated by the prevalent warmth of these sections. But where the air is constantly cooler, and the skin is less inclined to perspire, changes are borne more easily and with less discomfort, because the system is more vigorous, the skin is more active in its functions, and the patient therefore is less inclined to take cold.

Night air is dreaded very much by many patients, and when we ask them, why? we are often answered, "it is too damp to be out." But we see the same patients unhesitatingly sit in the open air on a sheltered verandah during day time when the hygrometer shows great humidity, or even when rain is falling. Day and night air are perfectly homogenous, and differ only in temperature—sometimes in condensation of vapor of the atmosphere, caused by decrease of temperature. Statistics have not so far shown that occupations, which compel their followers to work during the night (in the open air), are more injurious than the same when followed during the day. Accepting this view, we ought not to object, indeed rather advise patients, to leave a window either wholly or partly open during still nights, especially when we consider how essential pure air is for invalids, and how quickly the air becomes contaminated in a close room. Absolutely pure air is composed of oxygen 20.96 parts, nitrogen 79.00 parts, and carbonic acid 0.04 parts. An analysis of Pettenkofer (Munich) states that the quantity of carbonic acid in a dwelling in the morning is 0.054; the same increases gradually to 0.061, and so on up to 0.087. In a sleeping room during the night, with windows closed, it is 0.23, with windows partly open 0.082. A grown person excretes by way of respiration and perspiration, within 24 hours, about 20 cubic feet of carbonic acid and 2½ lbs. of water. We ought therefore to bring in at

* Altitude and Climate in the Treatment of Pulmonary Phthisis. Baltimore, 1875.

least 600 cubic feet fresh air every hour for each person, if we do not want to accumulate more than the maximum of carbonic acid compatible with health. Headache, want of appetite, fatigue in the morning, are often attributed to dyspepsia or liver complaints, when they ought to be considered symptoms of intoxication from carbonic acid by sleeping in closed rooms. Already in 1855, McCormack (England) recommended consumptives to sleep with open windows; and lately, Rohden (Germany) urged the same. Of course this measure has to be applied "cum grano salis," and we would do very wrong to let consumptives indiscriminately, and without regard to the weather and their condition, have their windows open every night. Here, as well as in every instance in the treatment of consumptives, it is necessary to individualize.

The beneficial influence of elevated regions with low barometric pressure is now acknowledged by the majority of physicians, and even the opponents of this theory cannot help appreciating the favorable results obtained by this treatment. The number of resorts which are situated at elevations from 1500 to 4000 feet, is increasing in Europe every year. We are justified in assuming that the good effect of altitude is lost, or at least is not perceptible to the patient, if the elevation is less than 2000 feet. The claim that phthisis decreases in high elevation, has gained strong corroboration by two recent publications. At the meeting of the Society of Natural Scientists of Switzerland, in 1863, a committee was appointed to investigate the occurrence of phthisis throughout the country, in its different relations to age, sex, occupation, elevation of places, etc. After several deliberations, it was agreed to extend the time of observations over 5 years, from 1865 to 1869, and now the result appeared in a report made by the Actuary, Dr. Emil Müller.* The part of the resumé at the end of the report, which relates to the influence of elevation on phthisis, presents the following points:

Decrease of Phthisis in Switzerland beyond doubt follows increase of elevation.

Phthisis occurs even in the most elevated places, although it is very rare.

Low regions average to have twice as much phthisis as the

* Die Verbreitung der Lungen schwindsucht in der Schweiz von Emil Muller, Winterthur, 1876.

highest; after deducting cases acquired abroad, considerably more.

The decrease of phthisis is not in strict proportion to the increase of elevation, and these variations taking place are mainly due to social conditions of the people, i. e., whether they follow farming, manufacturing, or both.

The second work is by Jourdanet,* who practiced four years and a half in Mexico, and observed only six cases of consumption amongst 30,000 visits to patients. The conclusions he arrived at are as follows:

1. Consumption in Mexico is extremely rare at an elevation over 2000 metres (about 6560 feet).

2. There is an almost absolute immunity among the better classes.

3. Disposition to consumption, acquired by young people somewhere else, generally disappears as soon as they remove to the mountainous regions.

4. Complete cure was frequently observed in patients who contracted their disease at other places (France).

The humidity of the air can be determined by different instruments. Saussure's Hygrometer indicates the absolute quantity of vapor contained in the air; Mühry's Micro-atmometer measures directly the quantity of water evaporated, whilst Leslie's and August's Psythrometer or Vaporimeter indicates the humidity by the difference between two thermometers, the bulb of one of which is exposed (dry bulb) the bulb of the other is surrounded by a wick immersed in water (wet bulb). The latter instrument, which is most used, enables the observer to calculate most of the different factors which show the humidity of the air, viz:

Relative humidity, i. e., the ratio of the quantity of vapor actually contained in the air to the quantity it could contain if fully saturated.

Absolute humidity, i. e., the weight of aqueous vapor in a given quantity of air; in this country the weight of vapor in grains in one cubic foot of air, in Europe generally in grammes in one cubic meter of air.

Dew-point, i. e., the point of condensation of vapor, or the temperature at which the air begins to part with the moisture, which it cannot hold at a lower temperature.

* Influence de la pression de l' air sur la vie de l' homme Climats d' altitude et climats de montagne. Par D. Jourdanet. Paris, 1875.

Elastic force of vapor, i. e., the pressure of the whole vapor in the atmosphere over the place of observation. It is expressed in inches of mercury of the barometric column, and is equal to the observed barometric pressure, diminished by the pressure of dry air.

It is not necessary to know all the four factors enumerated in order to determine the humidity of the climate of a certain place, but I cannot approve of the way which is generally adopted of comparing localities by means of relative humidity alone. It makes a great deal of difference, if the lungs inhale an atmosphere containing 2.59 grammes of an aqueous vapor in one cubic meter (the means of amount of vapor January, 1870, at Davos, Switzerland), or one containing 7.34 grammes in a cubic meter (the means of January at Cannes, France), the relative humidity being the same for both places, viz., 86 per cent.* The merit of drawing attention to the importance of the absolute humidity is due to Dr. Henry B. Baker, the eminent statistician of Michigan. I quote from the fourth annual report of the Secretary of the State for the year 1870, page 294, the following:

"The temperature of the air passing out of the air passages of human beings is believed to be fixed, or nearly so, the temperature shown by a thermometer under the tongue being about 98° Fahr., it is probable that the temperature of the expired air does not vary greatly from this, and as those passages are naturally supplied with moisture, the quantity of vapor in a given quantity of air exhaled from the lungs must be nearly uniform throughout all temperatures. The capacity of air for moisture being different when cold from its capacity when warm, the quantity of vapor entering the air passages must be different at different temperatures, supposing the air to contain all it can in every case; consequently the relative humidity is not sufficient for our purposes of comparison, as it only expresses the percentage of saturation at the temperatures existing when the observations were made. As indicated in the last report, we want to know for each month the relative quantity of moisture abstracted from the human air passages in excess of that inhaled; we should therefore ascertain the relative quantity of vapor in each cubic foot of air inhaled in each month."

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* Klimatologische Notizen neber den Winter un Hochgebirge, by Arthur Wm. Waters, F.G.S. London, 1871.

When we give to the absolute humidity the importance it deserves, we can then without difficulty understand, why places with high relative but low absolute humidity show all the properties of a very dry climate, as do, for instance, the lofty alpine health resorts in Switzerland. Biermann, a well-known writer about Climatology in Europe, states as the three main factors constituting climate, "temperature, barometric pressure, and absolute humidity," and subordinates the relative humidity as a secondary factor to the latter. The following table, which for want of data could only be extended over nine months, will show that a place with a higher relative humidity can have lower absolute humidity. The data of relative humidity referring to Aiken are taken from a recent publication of Dr. W. H. Geddings, in the *Charleston Medical and Surgical Journal*, entitled, "Aiken as a Health Station." The calculation of absolute humidity is based on Table XII, by James Glaisher, page 103, B, Meteorological and Physical Table, by Arnold Guyot, Washington, 1859, with omission of the decimals in the temperature.

TABLE.

Time of Observation.	Asheville, N. C.			Aiken, S. C.		
	Temperature.*	Relative Humidity.	Absolute Humidity.	Temperature.†	Relative Humidity.	Absolute Humidity.
August, 1875	70.9	81.7	6.53	77.4	79.5	7.85
September, "	63.9	79.8	5.15	72.5	69.5	5.90
October, "	53.1	64	3 01	62	63 2	3.95
November, "	43.3	72 3	2 46	52.2	71.2	3.24
December, "	37.3	74.5	2.07	45.6	68.9	2.50
January, 1876	37.3	61.6	1.72	47	61.8	2.39
February. "	38.9	62	1.79	48 2	64.3	2.57
March, "	44.8	56	1.97	53.2	51.8	2.44
April, "	54.1	58.1	2.82	62 1	55.8	3.48
Means	49.2	67.7	3.05	57.8	65.1	3.81

We see that Asheville, with an average relative humidity of 67.7 per cent., shows 3.05 absolute humidity, whilst Aiken, with a somewhat lower relative humidity of 65.1 per cent., shows 3.81 absolute humidity.

Rain originates from increased condensation of aqueous

* Not knowing the means of temperature at Aiken, we have taken the monthly means of a series of years—of 8 years for Asheville, of 11 for Aiken.

† In Dr. Geddings' above publication, by mistake the relative humidity of Asheville was taken for the three months, May, June, July, 1876, instead of 1875, which gives Asheville a higher percentage, as the year 1876 was more moist than 1875, and which accounts for the difference of the figures obtained by Dr. Geddings and myself.

vapor, the vesicles of which flow together and fall as drops of water. These drops increase in size as they fall, because the aqueous vapor of the air, through which they pass, condenses and unites with them. Therefore a rain-gauge located high above ground indicates less rain than one stuck in the ground. Rain is generally a very unwelcome guest to invalids, and rainy days are not only the most dreary for them, but many, nay, the majority, are afraid of direct injury from the rain. They do not consider that it is the rain which washes the air out and frees it from the carbonate of ammonia, which accumulates in larger quantity in the air when it does not rain for a long time. The rain absorbs this gas and conducts it to the soil, for which it serves as manure. The air contains after a rain more oxygen and less carbonic acid, which latter is absorbed by the rain. The rain plays a very important part in nature by conducting to the ground all the substances, which when inhaled, are injurious to health and plant the germs of diseases of the respiratory organs. It would be desirable if the rain would fall always at night, in order not to interfere with the daily exercise of invalids. But it does not hurt them to be outdoors during a rain on a sheltered verandah, or even to walk out with an umbrella if they wear good boots. The fear of being out in the open air during a rain is greatly less in Europe, where very conscientious patients can be seen taking their exercise with umbrellas.

Ozone is oxygen in active form, and oxygenizes organic and inorganic substances with much greater energy than common oxygen. It is therefore of the greatest importance as a powerful disinfectant of the obnoxious gases originating from the decomposition and putrefaction of animals and plants. It can artificially be produced by exposing bitter almond oil to the rays of the sun, or by bringing phosphorus into a bottle with water at 86° F. and shaking it. In nature lightning is a generator of ozone, but its main originator is the chlorophyll of the plants, which, under the influence of the rays of the sun, parts with the carbonic acid formed during the night and exhales the ozone.

After contemplation of some of the main factors of climate and their relative value to the invalid, a few words may suffice to enumerate some points, outside of climate and drugs, which have to be considered in the treatment of consumptives.

The entire change of habits a patient undergoes when living

in a health resort, has undoubtedly a great deal to do with his improvement. But the influence of this change has been greatly overrated by some writers, who attributed to it more importance than to the climatic influence. The improvement derived from a mere change without resorting to a proper climatic station, is either only slight or at least only temporary; and we even see physicians, who adopt the above theory, send the greater number of their patients to health resorts of reputation. The value of certain climatic factors in treating invalids cannot well be denied, and the results obtained sustain their importance.

The unlimited use of fresh air is by far the chief desideratum for a consumptive. This is a point the value of which is greatly underrated by physicians, and which has to be repeated continually to consumptives. If we could make a patient in the city breathe pure country air several hours every day; if besides, we could put him under proper hygienic conditions, free him from mental cares—we could sometimes save valuable lives, or at least retard the progress of the disease. In speaking about night air, the contamination of the air by accumulation of carbonic acid in closed rooms is already mentioned. But an equally deadly enemy of the consumptive is the dust in its finest forms, which is always in a room, even if kept scrupulously clean with all the windows open. To convince ourselves of the great quantity of this finest dust, it is not sufficient to look at a ray of the sun shining into a room, but it is necessary to darken the room completely except a very small opening, and I doubt if many can be found who would approach the ray of light with their mouth open without disgust. The same experiment can be made with strong electric light. The time a patient is spending in a room is lost, and worse than lost. I mentioned here only dust as contaminating the air in a room, but there are a good many other injurious elements in our dwellings helping to deteriorate the air, as for instance, the decrease of oxygen, the excrements of respiration (carbonic acid and aqueous vapor), the excrements of perspiration, the products of illumination, the formation of carbonic oxide (results of gaslight, stoves), accidental vapors (tobacco smoke, kitchen vapor, etc.), the warming into motion of the whole conglomerate—each enough to drive a consumptive out of doors, who is in earnest to do the best he can for his health.

Exercise is another essential for phthisical patients, especially as it assists to overcome the deficient expansion of the chest, and to bring air into parts of the lungs which were more or less inactive. To achieve this end, ordinary walking is not sufficient, but the patient must take deep inspirations, stop when his breath shortens, fully recover it, then go on until the breath shortens again, never allowing himself to become even partially "blown." In this connection, it may be permitted me to say a few words about the manner of breathing, which I extract from Niemeyer's Atmiatry, and to which too little attention is paid as yet. We pay much and often painful attention to our food-diet, but how many are there who observe a respiratory-diet, which is equally if not more important than the first. One of the reasons of this neglect is the secrecy with which respiration takes place. Many acts are necessary for nourishment, the procuring of food, its preparation, mastiscation, digestion; the excrements are disagreeable to our senses—nothing of all this with the respiration. We breathe unconsciously, and if the air becomes bad in consequence of accumulation of respiratory excrements, it does not become perceptible to our senses. We distinguish three modes of breathing: shoulder respiration, the most important; costal respiration, depending upon the elasticity of the ribs; abdominal respiration, the most extensive, as the descent of the diaphragm sets about three-fourths of the lung into activity. The apices are the least ventilated parts of the lungs, as the shoulder respiration requires a certain position of the body and a certain amount of labor—unlike abdominal respiration, which is possible in all positions. Besides a proper position, some few more points interfere with full shoulder respiration: the scapula with its appendices, the extremities, rests like a roof on the top of the lung, and has to be raised by will in order to comply with the object in view. The apices have not those supplementary spaces at the side and the base of the lung suited to receive the inflated parts. Further, the bronchus of the upper lobe does not directly descend as in the lower lobe, but runs upward in a curved direction and divides very early into a multitude of bronchial tubes, so that the inspiratory stream of air has to run around many curves and corners, till it reaches its destination—the alveoli. The apices of the lung are therefore best adapted to serve as a reservoir of residual air, which stagnates and is seldom and imperfectly renewed—a fact which plays an important part in the

etiology of the primary seat of the disease, which, as well known, is in the majority of cases the apices. Full breathing is as essential to the lungs as eating to the stomach, and we delight to see the new-born child exert it to the fullest extent during the act of crying. All nomadic tribes are naturally full breathers, whilst we are accustomed to a sitting life and only occasionally, when bent over too long in one position, erect ourselves and take involuntarily a deep, full breath. Artificial positions assist in setting certain parts of the lung into activity, and ought to be recommended after careful selection to the patient. For the sake of illustration, examples of two positions may be mentioned: if we desire a patient to breathe more with one side, for instance the left, lower the right shoulder, let the right arm hang down, and raise the left arm and breathe deep. To promote shoulder respiration, let an attendant compress the false ribs of the patient, and have him cross his hands over his head and breathe deep.

The use of cold water in its different applications ought not to be neglected in the treatment of invalids, as their skin is inactive and prone to perspiration. Cultivation of the skin counteracts the disposition to catching cold, and cold water applications act very favorably against an accompanying fever.

The relief of unpleasant or dangerous symptoms, especially careful observation of the functions of digestion and assimilation, are of course to be kept constantly in view.

It would unduly extend this article if all the climatic factors and all the hygienic measures were discussed. We saw that a difference in certain elements of climate does not materially affect the value of health resorts, but that others are essential and must not be lost sight of, if we would place a patient under the most favorable conditions for improvement. In the class of hygienic measures belong further, good accommodations, nutritious, well-cooked food, diversion of mind, pleasant social relations, and a rational physician, well experienced in the treatment of consumptives. This quotation from the late F. Niemeyer will always be in point: "The consumptive must live under the constant supervision of a strict, conscientious physisician, if favorable results are to be obtained." It is not a single remedy which is a panacea against phthisis, but it is the cautious and continuous application of a great number of remedies, properly selected for the individual case, which promises results.

Patients generally know very little of what does them good or what hurts them. They have to be taught, and this is often a most difficult task. It requires a careful study of and an untiring attention to all the surroundings of a patient, if we would have him to use all the proper hygienic and other remedies in the right way. The physician in daily practice cannot exert the necessary supervision upon which alone depends the welfare of a consumptive. A supervision of this kind, if used with discretion and adapted to the individual case, is never objected to by patients; on the contrary, as soon as they gain confidence in the physician, they like it and depend upon it. The experience of nearly two years has taught me the truth of this statement sufficiently, and the benefit received from it has been for a long time acknowledged in Europe. The objection to the aggregation of invalids, often heard against an institution, which, right or wrong, can be raised against any hotel or boarding-house, where consumptives congregate, does not hold good in practice, and invariably I have seen patients who hesitated to visit my Sanitarium on this account become converted to exactly the opposite view: they heartily appreciate the value of being in the institution. No patient considers his case the worst, and each enjoys to see others improve, and derives from that hope for himself. Besides, there are always a large proportion of well persons in such an institution, relatives and friends of the patient. One of the strongest points in favor of a medical institution and its preference to any other residence for consumptives, rests on the fact that the interests of the proprietor and physician are the same. The physician, whose first and main interest is to help the patient, will not hesitate to contradict and forbid, without fear, many things which a landlord will allow or even favor for the sake of pleasing or amusing his guests. A physician will give his patients all that he possibly can, as his reputation is based on the improved condition in which his patients return; a landlord will only do what will sustain the reputation of his house. The advantages of a medical institution are best illustrated by the actions of the stockholders of the Curehouse at Davos, who always boasted that their patients enjoyed more liberty, and could follow their own inclinations and notions more than those in a medical establishment. According to a letter I received recently, preparations are being made to change the Curehouse into a medical institution. I hope to be able before

long to convince the profession by my results, of the advantages of a medical institution for consumptives.

CURRENT MEDICAL LITERATURE.

PHYSIOLOGY AND PATHOLOGY.

BY H. D. SCHMIDT, M.D.

CEREBRAL LOCALIZATION.

In our last exchanges we meet with two interesting articles, concerning the localization of the functions of the brain, a subject which of late years has attracted a great deal of attention. The one (reported in the *London Medical Record*) has appeared as the leading article of the first number of a new French periodical (*Revue Mensuelle de Médicine et de Chirurgie*, January, 1877), and will be continued in subsequent numbers. In it the authors, MM. Charcot and Pitres, cite a number of interesting cases of cerebral lesion, with the view of pathologically confirming the results of certain experimental researches, regarding the existence of special centres for voluntary movements in the cortical layer of the brain. The other (published in the *New York Medical Journal*, May, 1877), forms an address to the American Neurological Association, delivered in New York, June, 1876, by Dr. Eugène Dupuy, member of that Association, *in explanation of the Mode of Production of such Movements induced by Electrical Irritation of the Cortex Cerebri.*

In order to present the contents of these articles in proper form to our readers, some preliminary remarks concerning the history of "cerebral localization of functions" will become necessary; more especially as this subject has, pathologically as well as physiologically, excited the interest of the medical world during a number of years, and very probably will continue to do so, until the true causes of the phenomena manifested will be ascertained. In 1870, Fritzsch and Hitzig instituted a series of experiments on dogs, relating to electrical excitation of the cerebrum, and resulting in the discovery of certain areas of those convolutions, situated around the fissure of Sylvius, sulcus centralis (fissure of Rolando), and of others in the vicinity of the sulcus orbitalis (crucial sulcus). By means of a mild current of electricity, applied to these areas, certain definite movements of

the limbs or face on the opposite side of the body could be induced. These experiments were repeated by Ferrier, Nothnagel, Schiff, Braun, Eckhard, Carville and Duret, Dupuy, Brown-Sequard and Burdon-Sanderson, and the previously obtained results confirmed. As regards their interpretation, however, a diversity of opinion still exists. For while Hitzig, Ferrier, Carville and Duret, with other experimenters, regard the movements as produced by direct excitation of the gray matter of the cortical layer itself, others, as Dupuy, Schiff, Brown-Sequard and Burdon-Sanderson, maintain that they are due to a diffusion of electricity to the deeper ganglia of the cerebrum, the corpora striata, etc., or to the apparent origin of the nerves at the base of the brain. The last-named investigators, therefore, uphold the current theory of the non-excitability of the gray or ganglionic nervous matter of the cortical layer of the cerebrum.

Being guided by the fact, that an electrical irritation of those areas of the convolutions of one hemisphere of the cerebrum, above mentioned, was invariably followed by certain movements of the limbs on the opposite side of the body of the animal, while these movements could not be induced by irritating in the same manner the cortical layer of other convolutions situated beyond these localities, Hitzig, Ferrier and others regarded these particular points as nervous centres of motion; that is, as such portions of the cortical layer of the cerebrum from which the motor impulses emanated, directed by the mind of the animal. Nothnagel, by a different mode of experimenting—consisting in piercing a hole through the bones of the cranium, and injecting, by means of a fine syringe, a solution of chromic acid into the cortical layer of the cerebrum—obtained similar results. He stated that a lesion, of from 1 to 1½ mm. in depth, in the anterior lobe of the cerebrum near the great longitudinal fissure, was followed by a partial paralysis of the muscular sense on the opposite side, and to which he attributed the awkward putting down of the fore paw by the animal, and also, the remaining of the paw in place when carefully drawn out—a position insupportable to a healthy animal. This condition disappeared gradually in six to twelve days, without leaving any disturbance of motion or sensation of the skin. Lesions of the white substance were, according to their locality, followed by paralysis of definite groups of muscles, without deviation of the spinal column or disturbance of the sensibility of the skin, but with decidedly similar deviations

of the legs observed in lesions of the cortical layer. These phenomena Nothnagel regarded as favoring the possibility of a motor paralysis, extending from the cortex cerebri, and probably finding its analogy in human pathology.

We abstain from mentioning the results of other lesions which Nothnagel produced in the same manner on deeper parts of the cerebral hemispheres, such as the nucleus lentiformis and the nucleus candatus of the corpus striatum, as they only confirm the existing theory of the motor functions of these centres.

In opposition to the above cited views, Dr. Eugene Dupuy repeated the experiments of Ferrier, chiefly upon dogs, varying them, however, in different manners. The results he obtained resembled to a certain extent those of Ferrier. Like him, he found that irritation of the convolutions produced local muscular movements; but, instead of obtaining these movements in different parts or regions of the body only in correspondence with the irritation of particular convolutions, he was, on the contrary, able to produce them by applying the electrodes to almost any convolution of the anterior or middle region of the cerebrum: even when they were placed upon the uninjured surface of the dura mater over the convolutions, the same effect was produced as when placed upon the exposed convolutions themselves. From the results of these and similar experiments, Dupuy inferred that the electrical stimulation was not limited to the points upon which the electrodes were applied, but, moreover, diffused through the whole hemisphere of the cerebrum, affecting directly the motor centres at the base, or even the nerves arising there, as mentioned before.

In the same year, however, Hitzig repeated his former experiments on the brain of a monkey (Innus Rhesus), which in form and development approaches nearest of all animals the human brain. With the view of corroborating the results of his former experiments on dogs, he exposed the cerebrum by trepanning of the skull, and irritated it in different places by a mild electrical current. All the centres of motion were found in the anterior central convolutions (gyrus centralis anterior), extending over the whole surface of this convolution from the great longitudinal fissure to the fissure of Sylvius. Irritation of the parietal region was not followed by muscular movements, while they could be produced by stronger currents of electricity, applied to single parts situated behind the sulcus centralis (fissure of Rolando).

The results of these experiments induced Hitzig to regard the anterior central convolutions as the true motor parts of the cortical layer of the cerebrum, from which all muscles of the body could be set in motion. In connection with these experiments, one observation, concerning the nervous centres of speech, was particularly interesting, namely, that all muscles pertaining to the apparatus of speech in man could (in the monkey) be excited by the irritation of one place, situated directly on the anterior border of the Sylvian fissure.

The results which Ferrier subsequently obtained from experiments on the brain of the monkey, are similar to those just related, and corroborated in all essential parts his former statements. He refuted the theory of diffusion of electricity advanced by Dupuy in explanation of the facts observed, as it failed to explain the absence of excitability in those parts of the cerebrum bordering the motor centres; especially as other parts had been found not responding to any electrical stimulation, though they were anatomically situated much nearer to the corpus striatum, which, in consequence of this close vicinity, ought to be of easy access to the diffused electrical current. Ferrier, also, succeeded in exciting the muscles of the tongue and the mouth from a particular spot corresponding to the centre of speech of Broca. In irritating this circumscribed part, he was able to induce cats to "mew" and dogs to bark. He, furthermore, admitted that the motor tracts did not pass directly from those parts in the cortical layer of the cerebrum to their respective muscles, but that they first communicated with the corpora striata before they entered the crura cerebri; and that, for this reason, the electrical excitation of isolated points in the corpora striata might produce effects similar to those obtained by the excitation of the cortex cerebri.

Regretting the narrow limits of the space portioned to us for discussion of this interesting subject, we must forbear from citing all the numerous experiments, with their results, which have been made in the course of several years on both sides of the question. May it suffice, therefore, to close our statement in mentioning only a few more of the leading facts. The chief objection made to the explanation, as given by Hitzig, Ferrier and others, of those facts above related—that is, in regarding them as true motor centres of the cortex cerebri—has been based upon the impossibility of avoiding a diffusion of electricity to the deeper

parts of the cerebrum. That such a diffusion really takes place has been proved by Dupuy, Duret and Carville. Nevertheless, the constancy of the results obtained still speaks for the explanation of Hitzig. Now, in order to put the question to a new test, Putnam and Brown made some experiments, consisting in the removal of those supposed motor centres in the cortical layer of the cerebrum by a horizontal section with a sharp knife, thus separating them from the underlying white nervous matter, the function of which is only to conduct, and not to generate nervous energy. After the section, the separated portions of gray matter were left in place. Repeated electrical irritation, of the same intensity as used before the section was made, was now followed by no effect, though it ought to have been followed by muscular movements in the limbs of the animal, as it did before, if the effect depended on the diffusion of electricity. But, when the separated portions of the gray matter were removed, and the electrodes applied directly to the underlying white matter, the movements were produced with an electrical current of the same strength as before.

One important fact remains to be mentioned, namely, that after the entire removal of those supposed motor centres in the cortical layer of the cerebrum, in dogs, the disturbances of motility following the operation are not permanent, but disappear after the lapse of several days; while the hemiplegia, caused by section of one of the crura cerebri, is permanent. Some experiments were made with the view of explaining the disappearance of the disturbance of motility above mentioned, but without a decided success.

We shall now re-direct our attention to the Address of Dr. E. Dupuy, mentioned in the beginning of this article. He commences by referring to his former experiments with their results, and to the conclusion at which he arrived, as mentioned before. He then states, that from the beginning of his researches published in 1873, he was led to reject the theory propounded by his predecessors, on the ground that—1. Deep anæsthesia prevents the occurrence of muscular contraction in the experiments of Hitzig and Fritzsch, and of Ferrier; 2. Drying the surface of the hemisphere with blotting-paper also prevents the occurrence of contraction; 3. That the contractions are not only produced by irritation of the anterior cortex cerebri, as claimed by the first observers, but also of the posterior lobes to some extent; 4. That

irritation of the dura mater gives similar results and of the same nature as irritation of the cortex; the movements are localized as well, the effects varying with different areas of the membrane; 5. That electricity could not be localized, as its effects are detected far and wide in the brain; 6. That under the influence of various vascular drugs, which increase or diminish reflex action, the phenomena are increased or diminished. And, moreover, that he showed in the beginning of February, 1874, to several physiologists of eminence in London, at University College, that when the so-called centres are destroyed on both hemispheres, not only no paralysis of any kind ensues, but that if a mild current of electricity is applied to the same disorganized so-called centres, muscular contraction results, just as if the so-called centres were normal. The same results obtain when the corpus striatum is in like manner irritated. Ferrier, he says, objects to most of these conclusions, by stating that if, during deep anæsthesia, the irritation of the cortex cerebri does no more give rise to motion, it is because that part of the nervous centres is the first to be influenced by the anæsthetic, and loses its excitability; so that the experiment which he (Dupuy) had made, and which consisted in irritating with the same current the exposed sciatic nerve of a dog, and getting contraction of the muscles animated by that nerve, while the cortex cerebri, similarly excited, responded by contraction when the anæsthesia was not deep, but gave no response when the anæsthesia was deep, did not show that the cortex was not motor as he supposed. Dupuy proceeds in citing an experiment made by Onimus upon a frog, in order to prove that the cerebral hemispheres are influenced *last* by anæsthetic agents, and that they are those parts which *first* resume their normal state. He then defends his views against Carville and Duret, who differ with him in regard to the reflex nature of those phenomena; and, after referring to the experiment of Putnam, which he considers incomplete, and refuting Ferrier on some special points of the question, he goes on to state the results of a new series of experiments which he made with the object in view of finding the process through which the phenomena under consideration are produced. For this purpose, he put a vigorous adult dog under the influence of chloroform, and exposed the so-called psycho-motor centres on the cortex cerebri, laid bare by the usual operation. To assure himself of the presence of these centres, he applied the electric current to

the exposed convolution, giving rise to muscular movements in the fore limb of the opposite side. With a cauterizing iron, heated to whiteness, the exposed convolution, still covered by its pia mater, was now touched, giving rise to fresh movements in the limb, as before the operation; and finally, the wound sewed and dressed. The animal, a few hours later, when completely recovered from the effects of chloroform, exhibited no perceptible traces of paralysis, with the exception of the pupil of the corresponding side being slightly contracted, the eye a little moistened, and the upper eyelid dropping. Twenty-seven days later the wound was completely healed, but no perceptible alteration of motion or sensation found in the animal. In reopening the wound it was found that the cranial bone was, in the spot operated upon, in process of regeneration. The dura mater, which had been divided by a crucial incision, was healed over, and adhered to the mass of newly-formed tissue, and also, in a lesser degree, to a patch formed in the part cauterized. Irritation by an electric faradic current (very tolerable on the tip of the tongue) of this escharotic spot, previously dessicated by blotting-paper and tinder (the dog being under the influence of anæsthesia), gave rise to no phenomena of motion in the limbs, while the same current applied to the surrounding parts, and especially in front and below the escharotic patch, gave rise to movements of the limbs of the opposite side. The escharotic spot was then removed, and an electric current applied to the cavity left, which appeared neither to be the seat of inflammation nor of softening, but no muscular movements were obtained, though the same current, when applied a little behind this point, gave rise to motions in the muscles of the neck and abdomen. In the majority of animals thus operated upon, a more or less limited inflammation was found, even after a longer time, in the parts cauterized.

From the results of these experiments Dupuy suggests the idea, whether the movements usually observed in experiments of that nature are not due to the irritation, not of the cortical layer, but of the vascular nerves of the pia mater and vessels, numerous in the parts habitually irritated—an irritation producing contraction of the blood-vessels. He, farther on, mentions that recent anatomical researches have shown that the strands of fibres ramifying into the crown of Reil, and the internal capsule, and those forming the fibres of the frontal convolutions,

which are not excitable even by electricity, are virtually the continuations of the spinal cord. The connection between those pia-fibres and blood vessels and those strands, are the factors to be considered. At the end of his address he comes to the conclusion, that the whole of the foregoing facts constitute a safe ground to establish the theory that the phenomena of the contraction of a definite group of muscles which follow the irritation of a certain area of cortical matter, always the same for the same phenomenon observed, are due to a reflex process in which the vascular nerves play the first part, and are identical in *kind*, if not always in degree, with those which are obtained by irritating different portions of the dura mater.

The above extract embraces the chief points of Dr. Dupuy's address. For the want of space, we must forbear from presenting more of it to the reader, especially his remarks on the function of the nerve cells.

In reviewing now the subject of the localization of functions in the cortical layer of the cerebrum, as it has been presented in the foregoing pages, we notice that the difference of opinion between the two parties of physiologists rests, with the exception of some minor points on which their statements do not correspond, principally with the explanation of the phenomena observed. On one side, the view is held that the irritation produced on those particular parts of the cortical layer of the cerebrum is directly carried from there through some *special strands* of nerve fibres to the so-called motor-ganglia or centres situated within the cerebrum, as the corpora striata, etc., from which the stimulus proceeded to the minor centres of motion in the gray matter of the spinal marrow, and, finally, through the nerves emanating from the latter, reach the respective muscles and induce the movements observed. But as these muscular movements are only produced when the irritation is applied to those particular convolutions above mentioned, it is supposed that the latter are the seat, not of merely *reflex*, but of true *psycho-motor* nervous centres. On the other side, represented by Dupuy, it is supposed, as far as we are able to understand, that the electrical current, when applied to those particular convolutions, remains not confined there but diffuses itself through the substance of the cerebrum, and thus reaching the larger motor-ganglia, or even the nerves at the base of the brain, stimulates them in a more direct manner; or, as Dupuy explains in his address, the electrical irri-

tation is carried to those ganglia or to the spinal marrow through the medium of the nerves of the pia mater and blood-vessels. He, as already noticed, furthermore maintains that these muscular movements can be produced by the irritation of almost any part of the cortical layer, though he admits that the electrical current must then be of greater strength. In other words, the question is, whether muscular movements may be induced by a direct irritation of gray nervous matter, of which the cortical layer chiefly consists, or whether the irritating agent must be applied to the white matter—the nerve fibres themselves. Without denying the possibility, in the case under discussion, of the transmission of the irritation from the pia mater through its nerves and those of the blood-vessels to the corpus striatum, or even to the spinal marrow, we nevertheless think that there are other routes besides, in the cortical layer of the cerebrum itself, through which the nervous stimulus called forth by the electrical irritation at the surface of the convolution may reach the corpus striatum with its lenticular and caudated nuclei. Before tracing these routes, however, the question must be answered, what is the reason that an electric or other stimulus applied, for instance, to the gray ganglionic columns of the spinal marrow, is not followed by muscular contraction, while another, applied to the white columns or to the peripheral nerves themselves, produces such contractions. As we know, there are two kinds of nerve fibres met with in the nervous system of vertebrated animals, viz., the dark bordered or double contour fibres, and the gray or sympathetic fibres. In the former, the axis cylinder is the part which represents the *true* nerve-fibre, while the nerve-medulla and tubular membrane may be regarded as mere envelopes surrounding the axis cylinder. The latter, the sympathetic fibres, possess no such enveloping sheaths; but, having the same structure as the axis cylinder of a double contour fibre, they may be regarded in the light of *naked* axis cylinders, lying side by side. The white nervous matter of the cerebro-spinal axis, and the peripheral nerves arising from it, are composed of double contour fibres which are distributed to the voluntary muscles, consisting of striated muscular fibres; while the sympathetic fibres are found in the sympathetic nervous system, and distributed, with the exception of the heart, to the unstriated muscular fibres or cells, of which the involuntary muscles consist. The voluntary muscles, being supplied with double contour nerve fibres,

respond very readily to a nervous stimulus by energetic contraction, which may be due, as we suppose, to the nerve-medulla and tubular membrane surrounding these fibres, and serving as insulators—that is, preventing the nervous energy travelling along the axis cylinder from being diffused from fibre to fibre, or also to the connective tissue of the nerve sheaths. The nervous energy, being thus confined, may be kept at a higher tension, and its action be more definite and decided. The involuntary muscles, the action of which is chiefly rhythmical, respond, as we know, only slowly to a nervous stimulus, which may be due to the absence of insulating sheaths around their individual nerve fibres, though it must be remembered that the sympathetic nerves also contain a comparatively small number of double contour fibres. Remembering, now, these facts, it will be easily understood why the gray or ganglionic nervous matter, chiefly composed of ganglionic bodies (nerve-cells) and granular substance, is not affected as readily as the white matter, entirely composed of double contour nerve fibres.

In order to explain the routes along which, in the experiments under discussion, the nervous stimulus probably travelled, it becomes necessary that we should take a glance at the minute anatomy of the cortical layer of the cerebrum. The nervous portion of this consists of numerous ganglionic bodies of different form and size, and of *vertically* and also of *horizontally*-running double contour nerve-fibres, arising from them; further, of a fine granular substance, filling up all spaces left between the ganglionic bodies, nerve fibres and blood-vessels, and lodging a network of minute meshes formed by fine granular nervous fibrillæ. The ultimate fibrillæ of the branches of a portion of the processes of the ganglionic bodies terminate in this network. The typical form of the greater portion of the ganglionic bodies in the cortex cerebri resembles a more or less spindle-shaped tuber, from the sides of which greater or smaller conical processes arise, giving to the whole body (in a thin section) a triangular or pyramidical form. One of them, the pyramidal process, longer than the others, takes a vertical course towards the surface of the brain, and gives rise to a number of short, fine terminal branches which soon terminate in the fibrillous network. We have never seen a double contour fibre arising from this process. Another process, the *lateral*, arises from the side or base of the ganglionic body; from it a dark bordered nerve fibre always arises, which

attains a considerable length and runs in a more or less horizontal direction, that is, parallel to the surface of the cortex. Though we have never seen a direct communication between two ganglionic bodies by means of this nerve fibre, we nevertheless suppose the existence of such communications, connecting ganglionic bodies, or groups of them, of one convolution with those of another. A third process, the *basal*, arises from the base of the ganglionic body; from it a double contour nerve fibre also arises, which passes downward toward the white substance. In the larger ganglionic bodies there are two basal processes, one of which giving rise to dark bordered nerve fibres, while the other divides into fine branches terminating in the network. The double contour nerve fibres arising from the basal processes form the white substance. At first they join each other and form small bundles, separated from each other by considerable interspaces; but as others arise from ganglionic bodies situated below, the interspaces become more narrow, until at the border of the white substance they are entirely lost, so that the bundles come to lay contiguous to each other. Regarding the nerve fibre arising from the lateral process, we must add that in one instance we have observed it dividing in two branches, which finally terminated in the network. This observation, however, does not preclude the possibility of a reciprocal connection of the ganglionic bodies of neighboring convolutions. Besides the double contoured nerve fibres arising from the lateral and basal processes of the ganglionic bodies, there are others, however, very fine ones, which we have observed to arise directly from the terminal nervous network, and to pass vertically downward toward the white substance. May they possibly be fibres of sensation? It has already been mentioned that the ganglionic bodies differ in size and form. Those situated nearest to the surface are the smallest. Their processes, which run in various indefinite directions, are very fine, and difficult to be traced. There is no doubt but that from some of them a number of fine double contour fibres arise, which, in very thin sections, are seen running parallel with and near to the surface. In a few instances we have, ourselves, observed a process running in an oblique direction directly to the surface. Other processes, arising from these small ganglionic bodies, give rise to fine nerve fibres, running downward toward the white substance. In taking with a sharp knife a very thin slice from the surface of the cortical layer (after the removal of

the pia mater), sufficiently transparent for microscopic purposes, the examination of its surface will reveal, directly beneath the exceedingly fine fibrillous neuroglia, a number of fine dark-bordered nerve fibres, running in various directions; their terminal ramifications form an imperfect network of large meshes, which passes into the regular terminal fibrillous nervous network extending throughout the granular substance. These horizontally running nerve fibres are derived from the uppermost layer of small ganglionic bodies above mentioned. Now it is obvious that a stimulus, caused by the irritation of a mild electric current, or of any other agent, on the surface of the cortex cerebrum, will first be received by these double contour nerve fibres, and transmitted to their respective ganglionic bodies. From the latter, increased in strength by an additional amount of nervous energy received here, it passes through those fine descending nerve fibres arising from them, to the white substance. But at the same time the stimulus is also transmitted through other processes, and by means of the terminal nervous network (in which some process of every ganglionic body terminates), to other ganglionic bodies below. As in each of these bodies the stimulus receives some fresh nervous energy, it constantly increases in strength until it arrives at the white substance. In the case in which the electric current is applied to the surface of those convolutions supposed to be psycho-motor centres, a mild one suffices, as the stimulus will be carried along particular strands of fibres leading directly to the corpus striatum, etc., and readily be responded to by a contraction of the muscles concerned. But if the same mild current is applied to convolutions situated beyond these centres, it will not be followed by a contraction of the muscles concerned; because, though travelling the same route through the cortical layer, the nerve fibres arising in this locality may lead to different (unknown) regions or organs of the body. By increasing, however, the strength of the current, muscular contractions, as has been stated, will be induced; because, now, though a portion of the current may pass to unknown regions, the rest may be diffused, and pass along those horizontally running nerve fibres arising from the lateral processes of the ganglionic bodies—and most probably establishing reciprocal communications between these bodies—and finally reach the psycho-motor centres in question.

The localization of functions in the cortical layer of the brain

has been with us, for a number of years, a favorite subject of study and reflection, and we can not regard this idea as resting upon mere speculation; for if this layer is really the seat of the intellect and the will, receiving impressions and generating nervous impulses, the existence of special routes, along which they may reach the special organs of motion subservient to the will, becomes obvious. And the fact that we are able to cause by our free will, not only special groups of muscles but even individual ones, to contract, can hardly be explained in any other way, than by supposing the existence of *special* strands of nerve fibres, not only leading from the cortical layer of the brain to the larger motor ganglia of the cerebrum, the corpora striata, but also from these to the motor centres of the medulla oblongata and spinal marrow, along which strands the impulse may reach these muscles. And it is the importance of knowing the exact localization of such psycho-motor centres in the diagnosis of cerebral diseases, which has attracted the attention of the profession to the experiments discussed in this article. Observing the paralyzation of certain groups of muscles, we might from it determine upon the true locality of the lesion in the brain, if the exact psycho-motor centre, inducing these muscles in a normal condition to contraction, were known. It is only to be regretted, that the pathological observations hitherto made on this subject have not in all cases revealed such lesions as might have been expected. We trust, however, that by a closer and continued study of the subject, the true cause of discrepancy will be discovered.

We regret that the exposition of the physiological part of the subject has taken so much of our space, as it obliges us to confine our statement of the pathological observations of MM. Charcot and Pétres to the leading points of the subject. As regards the report of these observations, published in the *London Medical Record*, it seems to have been written by one of the most prominent physiological investigators of the subject itself, and we shall take the liberty of using his own language whenever convenient.

After some preliminary remarks upon the history of the subject, the authors say that if the facts are really applicable to man, it ought to follow: 1. That lesions of the motor region of the cortex ought to produce motor symptoms; 2. That lesions of the non-motor region should not cause motor symptoms.

It would seem at first sight, they say, a comparatively easy matter to determine the truth or falsity of these propositions by

reference to recorded cases, but it is surprising how few can be made available for trustworthy conclusions, owing to the vagueness and want of precision as regards the situation and extent of the lesions. Thus even Cruveilhier, usually so accurate in other respects, records a case of persistent left hemiplegia, due, as he says, to softening of the "posterior convolutions." On examination of the figures representing the lesion, it is found the lesion is situated at the level of the inferior parietal lobule, and that it had destroyed the middle third of the ascending parietal convolution. It is therefore necessary, in examining the records of cerebral disease, rigorously to exclude all cases in which the exact topography of the lesion is not given, as also all multiple and diffused lesions. Great care must also be exercised in reference to cases of tumor, on account of the difficulty of estimating the indirect effects of compression on distant parts. When these principles are carried out, comparatively few of the older records have any value. Recent cases, carefully recorded within the last few years, are more to be relied on, and it will be found that they confirm the fundamental doctrines of cerebral localization.

After describing the method employed for obtaining faithful and lasting records of cortical lesions, they proceed in discussing the lesions of different regions of the cerebrum, with the particular cases related to them, as follows:

Lesions of the Non-Motor Regions. That extensive lesions of the cortex may occur without motor symptoms, is abundantly proved both by old and by recent observations. How to explain these cases on the theory of functional homogeneity, has always been a matter of difficulty. The usual explanation given is that, owing to the slowness of the development of the lesions, time was allowed for functional compensation by other parts of the hemispheres. This explanation was given by Lallemand, and adopted by Durand-Fardel.

But this explanation is shown to be untenable by the occurrence of cases of wounds of the brain which have not caused either paralytic or convulsive phenomena. Many such cases are on record; among others, the celebrated American crow-bar case. The authors have had two similar cases under their own observation, and they refer to another, in which the upper part of the first right frontal convolution was lacerated. The patient

died of pyæmia, without having exhibited any motor symptoms. In another case, the temporo-sphenoidal lobe was extensively lacerated, also without motor symptoms. These cases cannot be explained away by the slowness of growth of the lesions. As will be shown, the whole depends upon the position of the lesion; a fact which can only be accounted for by the functional differences of the regions in question.

It is important to determine accurately, by clinical and pathological observation, which regions may be affected without giving rise to disorders of motility.

A number of cases are now related, from which it results that destructive lesions may occur in the temporo-sphenoidal lobe, the occipital lobe, the inferior parietal lobe, the *pli conobé*, the island of Reil, the cuneus, the quadrilateral lobule, the orbital lobule, and the anterior extremity of the first, second and third frontal convolutions, without producing the slightest motor disturbance. It is also important to note that these lesions cause no secondary generations of the spinal cord.

Lesions of the Motor Zone in General. The motor region, according to the authors' observations, includes the ascending frontal and parietal convolutions, the paracentral lobule, and probably also the parts immediately adjoining, such as the base of the frontal and superior and inferior parietal convolutions. These regions, according to the results of experimental physiology, contain centres for differentiated movements of the opposite side of the body, face, limb, mouth and tongue, etc. The results of destruction ot these regions vary with the position of the animal in the scale. The paralysis is transient in the dog, but permanent in the monkey. The observations of the authors on man are in accordance with the results of experiment on monkeys. But all lesions are not destructive. Some may give rise to irritation, and thus cause convulsive phenomena; others destroy and cause paralysis; while in some cases, alternation of these phenomena may be observed. The authors first direct their attention to total and extensive lesions of the motor zone, and then to more limited lesions. Only those strictly limited to the cortex are considered, and all cases of diffused irritation, such as those caused by chronic meningo-encephalitis, or by simple or tubercular meningitis, are excluded. The symptoms observed in general paralysis are no doubt due to the cortical

lesions of the motor zone, but it is very difficult in all these cases to be quite sure of the extent of the lesions, or to analyze all the symptoms.

The motor regions receive their blood-supply from the superficial branches of the Sylvian artery, and in such a manner, according to the researches of Duret, that the cortex may be deprived of its blood, while the circulation is unaffected in the central parts. From thrombosis or embolism of the Sylvian artery, after it has given off its branches to the corpus striatum, the cortical motor zone may be softened, and the result is complete hemiplegia of the opposite side, differing in no respect from "hemiplegie centrale vulgaire" resulting from destructive lesions of the opto-striate nuclei.

A case is then cited of complete left hemiplegia, without loss of sensation, in which softening of the region supplied by the Sylvian, especially the lower two thirds of the frontal and parietal ascending convolutions, extending insensibly into the base of the second frontal gyrus, and into the inferior parietal lobule was found; the ganglia and rest of the brain were normal.

It is not necessary that the lesion should directly affect the whole of the territory supplied by the Sylvian artery, in order to cause hemiplegia of the opposite side. This is illustrated by a case of left hemiplegia with conjugate deviation of the eyes, in which the lesion, though complicating the ascending parietal convolution and postero-parietal lobule, and the upper parts of the temporo-sphenoidal convolutions, no loss of sensation was observed. The basal ganglia were normal in this case.

In cases of lesions affecting the motor region, and not rapidly fatal, permanent contractures may occur. In these cases, descending sclerosis of the lateral columns of the cord has been found, in no wise differing from that resulting from lesions of the internal capsule, as described by Charcot.

Four illustrative cases are now cited, in which softening either of portions or throughout the following parts of the brain was found. The ascending frontal and parietal convolutions, and also the island of Reil, were affected in every one second and third frontal convolutions in two, third frontal convolution alone in one, inferior parietal lobule in one, and both superior and inferior parietal lobules in two of these cases. In two of the cases the ganglia were normal; in the others the left crus, as well as the pons and pyramid on the same side, were affected by

secondary degeneration; in one of the last cases, even the lateral columns of the spinal marrow of the opposite side.

Limited Lesions of the Motor Zone. In partial lesions of the motor zone, the hemiplegia is partial or dissociated; and contrary to what occurs in general lesion, the hemiplegia is always accompanied by transitory primitive contracture, and may, if the patient survive, remain permanent, and be accompanied by secondary contracture. Frequently, also, in these cases, epileptiform convulsions alternate with the paralysis.

In cases of lesion of the central ganglia, the hemiplegia is complete, and affects face, arm and leg together; but in partial lesion of the cortex, the paralysis affects the face, or the leg, or the arm, or the leg and arm, without the face. Such a hemiplegia is to be called partial or *dissociated.* When paralysis, limited to one limb, or to the face (monoplegia), results from cerebral disease, the lesion is in the central motor zone, or in the white matter immediately subjacent. Another character of these dissociated cortical paralyses is, that the parts affected are frequently the seat of early contracture more or less pronounced, and more or less persistent.

In illustration of this view a number of cases are cited, in all of which portions of the ascending frontal and parietal convolutions, and in one case also the gray matter at the base of the fissure of Rolando, were found to be affected by disease.

In certain cases the cortical lesion, instead of remaining circumscribed, advances gradually. When it has invaded the whole of the motor zone, the hemiplegia becomes complete, and it is impossible then to distinguish between cortical and central paralysis; but the clinical history shows that the case has been one of successive monoplegiæ, a character which belongs to cortical lesions alone. Many examples will be given when the authors treat of partial epilepsy.

When cortical lesions are not rapidly fatal, they are followed by permanent paralysis with secondary contracture, just as in lesions of the motor track of the internal capsule. In illustration of this statement, several cases are detailed, in which not only lesions were found to exist in portions of the ascending frontal and parietal convolutions, and the paracentral and quadrilateral lobules, but also atrophy of portions of the pons and anterior pyramid, and bands of sclerosis in the lateral columns of the cord.

The existence of secondary scleroses in the spinal cord as the result of cortical lesions, is an important fact. They occur only when the lesions are situated in the motor zone, and not at all from lesions in the non motor zone, however old, or however extensive these may be. Hence it may be concluded, that between the cortical motor zone and certain fibres of the lateral tracts of the spinal cord there exist relations more or less direct, which do not obtain with reference to other regions of the cortex.

(*To be continued.*)

DELIVERY OF A MONSTER WITH TWO WELL-FORMED HEADS.

By Dr. Bottern, Faaborg, Denmark.

(Taken from "Hospitalstidende" of November 22d, 1876. Translated by O. R. Lanng, M.D., New Orleans, and read before the New Orleans Medical and Surgical Association, Saturday, January 13th, 1877.)

In the night between October 24th and 25th, 1876, I was called to Vesterhœsinge Mark, about nine English miles from Faaborg, to deliver a 21 years old person, who two years before had born a well-made, living child.

Arriving at the place at 2 o'clock in the morning, I was informed by the midwife that parturition had set in October 24th, in the evening at 3 o'clock, and that the water had passed a couple of hours later. During the evening and night the pains had been weak; parturition, however had proceeded so far that the midwife thought a physician would now be able to accomplish the delivery, orif. uteri having disappeared and the head having been pressed down in the pelvis. The patient was a robust, tall woman; inspect. ext. abdominis presented the usual appearance; the patient thought that she had felt life until 24 hours previous; sound of fœtus was not to be heard.

By the exploration was felt a large solid head in regular crown presentation; there was a big caput succedan; pains were frequent, but weak, and did not move the head at all; the proportions of the pelvis were, however, favorable; so much that I thought I would be able to deliver her without great difficulty with the forceps.

I got the patient brought in proper position, applied the forceps easily, and finally I got the head out of the vulva, but with great difficulty, the head showing much inclination to withdraw as soon as the pulling was not continued incessantly or when the arms of the forceps were relaxed.

However, I got the head out of the vulva, and expected that the body would now be born without difficulty. The patient

continued to have weak pains. I tried now tractions at the head, and as these were without any effect, at the right arm too, which I had got down. Trying to get the left one down proved unsuccessful, for several obvious reasons.

As I did not succeed in promoting delivery in spite of tractions at the head and the arm, it became evident to me that I had to do with some anomaly. Suspecting the shoulders to be too broad, patient getting weaker, and fœtus being dead, I made up my mind to decapitate in order to be able to turn and deliver patient as quick as possible.

The head was pressed hard against labia majora, so that it was only with great difficulty, and using much precaution not to injure the mother, that I got it severed. As soon as the head was severed, the body withdrew to the cavity of the pelvis, and by exploration the back of the child was now felt in a slanting position in the right side of the mother, and in the left side not far from introit. pelv. was felt another head.

Fearing to injure uterus with the fragmina of vertebræ colli, I abstained from turning, and got the body of fœtus lifted so much up that the head could slip down into introit. pelvis. Without instruments I succeeded now in getting head and body pulled out.

Placenta was born a quarter of an hour later, was of middling size, and did not show any trace of division.

At 5 o'clock in the morning the delivery was over, the whole operation having lasted 3 hours; the mother was very weak and enervated, but rallied speedily, being brought to bed and taking some stimulants. The loss of blood during delivery was not considerable. Seven days later she was doing well.

In this case there was born a child with two well-developed heads on one body. My first idea was of course to get possession of it for preservation, but I met with so much resistance from the mother and her relatives that I had to give it up. I got the child photographed, and I forward herewith the picture, which in some degree gives an idea of its appearance.

The length of the child is 21 inches, its weight with both heads 10 lbs.; the decapitated head weighs $1\frac{3}{4}$ lbs. As the picture shows, the right head, which was born first, is situated in reg. clavicular, between the neck of the other head and the shoulder; it is sitting on a very short neck provided with vertebræ, which can be pursued slantingly downward to the middle of the child, where they are connected with the middle dorsal vertebræ of a normal vertebral column going to the other head. The right head appears on the picture larger than the other one, caused by the caput succedan, and the tractions; it looks like a well-formed head, with solid bony formation.

The head to the left does not look so swollen, is a little smaller

than the other one, but has the size of a full-developed head; it is sitting on a long neck, continuing in a straight vertebral column. Both heads are sparely covered with hair.

The chest is very large, measuring 14½ inches under axillæ, and is flat in the middle.

Both shoulders are well developed and attached to claviculæ, but these seem to have no central attachment, sternum apparently missing.

On the left side the ribs start from the straight vertebral column going to the front, but having no bony attachment here like claviculæ; on the right side the ribs start from the vertebræ belonging to the right head, and end like the ribs on the left side do; between the two vertebral columns there exists a triangle, where only soft parts are to be felt.

Arms and hands are large and well-shaped; abdomen normal and does not show any sign of division. The sexual organs are female.

Legs normal.

The child was photographed lying in a trough, which was raised as much as possible, but the drawing appears yet a little shortened.

I should have liked very much to be able to send the body of the child along, but this was not possible, neither could I obtain permission to make a post-mortem examination, and only by persuasion I obtained this picture.

I hope, however, that the description of the delivery and the monster may be of interest to the readers of the journal.

Dr. Bottern feels evidently happy, having succeeded in delivering his patient, and has certainly good reasons for congratulating himself to have executed his work so well. I think he may also congratulate himself that the monster presented itself in a crown presentation, and not in a breech presentation. Supposing this had been the case, the difficulty of delivery would have been increased considerably. Any amount of tractions would, of course, be of no avail whatsoever, the heads not being able at the same time to enter introitus pelvis. The body, for this reason, would not have appeared any further than until about os sacrum, the balance of the body filling up vagina, rendering an exploration impossible; for this same reason it would be very difficult to introduce the branches of a forceps or a cranioclast, and most certainly impossible to embrace the two heads in the forceps. Decapitation would now be resorted to, but may be not practicable without a previous exvisceration, and finally extraction of one or two detached heads from the womb.

MISCELLANEOUS.

American Medical Association.

Twenty-Eighth Annual Meeting, held in the City of Chicago, June 5th, 6th, 7th and 8th, 1877.

TUESDAY, JUNE 5.—FIRST DAY.

The Association met in Farwell Hall, and was called to order at 11 a. m., June 5th, 1877, by Dr. J. Marion Sims, the retiring President, who in fitting words thanked the Association for the honors it had conferred upon him, paid a flattering compliment to the founder of the Association, Dr. N. S. Davis, of Chicago, and with a glowing reference to the labors of Dr H. I. Bowditch, of Boston, introduced him as the incoming President.

Dr. Bowditch congratulated the Association most cordially upon its meeting in this the queen city of the West under such propitious circumstances, and expressed the hope that all would retire from the meeting feeling that they possessed good-will toward all men, and that they had learned something which might be utilized for the benefit of suffering humanity, and which could be carried pleasantly with them until transferred from this sphere of earthly activity.

Prayer was offered by Rev. Wm. L. Harris, D.D. LL.D.

Dr. N. S. Davis, chairman of the Committee of Arrangements, delivered the address of welcome, which was full of pleasing references to the growing city of the West, to her aqueduct, her groves, her institutions of learning, and her commercial advantages. A touching reference was made to the preliminary meeting held thirty-one years ago in the city of New York for the organization of the American Medical Association. In that meeting there were seventy-six voters. Of that number only one could be seen in the present meeting, and that member was Dr. W. T. Atlee, of Philadelphia. Nearly all the original members had passed to their final reward. Of the twenty-eight presidents sixteen had gone to their everlasting reward. Reference was made to the death of Dr. Henry F. Askew, of Delaware, an ex-president of the Association. Dr. Davis closed his address by declaring the delegates thrice welcome to the hospitality of the city.

Dr. Norman Bridge, chairman of the Committee of Registration, read the list of delegates whose credentials had been approved, and whose names had been duly registered.

The following gentlemen were elected members by invitation: D. F. Boughton, of Mendota, Wis.; W. H. Bunker, of Cincinnati; J. B. Reed, Dixmont, Pa.; D. Leavitt, and Eichberger, of Terre Haute.

The following gentlemen were elected permanent members:

Drs. J. K. Bartlett and E. W. Cross, of Minnesota; Drs. D. A. K. Steele, S. A. McWilliams, John E. Owens, Charles T. Parks, E. O. F. Roler, Charles L. Rutter, D. F. Nelson, J. S. Knox, W. E. Quins, W. S. Nevins, M. P. Hatfield, Thomas Bevan, E. W. Sawyer, and L. H. Montgomery, all of Chicago, and S. M. Hamilton, of Monmouth, Ills.

The President invited the retiring President, and also the delegates from the Canadas, to take a seat upon the platform.

PRESIDENT'S ADDRESS.

Dr. Bowditch then delivered the President's annual address, in which he first referred to the past of the Association, contrasting its first meeting—when it was a body of heterogeneous natures, with nothing especially to unite them—with the large, harmonious meetings it now holds every year. Before its inauguration the profession was disintegrated, and members knew little of one another, except those in their own home circle, while now the Association embraced men from the most distant parts of the country, who were brought face to face at these annual gatherings. Dr. Bowditch looked back on the enthusiasm of the first meeting, and contrasted its spirit with the point-of-order discussions at the business meetings and the wine-drinking at the social gatherings which had been rather too prominent features of some of the Association's meetings. For this and other reasons there had been opposition to the Association. One particular reason was, the general expectations had been raised to too high a pitch for the Association to realize them. Besides, a society made up of so many different elements, coming together only once a year, could not carry on any fine scientific work. The Association should meet more frequently. In fact, what was needed was small and frequent reunions.

The Transactions of the Association, moreover, were too bulky, so that they depressed rather than excited the enthusiasm of the readers. It must be confessed that this was indeed one great reason why the reputation of the Association had been lowered. He made these observations in no merely captious spirit, but because he believed there was no better way to make improvements than by looking fairly at figures. These objections, he believed, as well as others, could be removed, and new vigor be put into the Association.

In the first place, there was chance for improvement in the Sections. There was not enough criticism of the papers read, nor was it exactly the right kind. He thought the Association should adopt the plan in operation at the Smithsonian Institute—not to publish anything until after it had been submitted to and approved by experts, whose decisions were final. The Association should further declare as its rule for the guidance of such experts, that no paper should be deemed worthy of publication which did not give something new to medical science, or

which did not present such an analysis or such a new or lucid arrangement of facts already wholly or in part known as to greatly aid the profession. Dr. Bowditch hoped these recommendations would be referred to the Judicial Council, to report at this meeting. To this Council he would also have referred the question of the propriety of having a standing committee of one to procure scientific papers for the annual meeting from the best men in the country.

This Association, to its praise be it said, had also extended an invitation to women to meet with it. Dr. Bowditch favored conducting the public entertainments upon temperance principles, and thought the Association should take the highest ground against the use of intoxicating drinks among its members. Such action would have the most important effect on the noble cause of temperance throughout the land.

Dr. Bowditch also thought that every member of a State Society should be a permanent member of this Association. Dr. Bowditch was also in favor of reduced representation He would have a Society send one delegate for every twenty or thirty members, instead of one for every ten, and he believed that with this change the honor of being a delegate would be more sought after, and that it would devolve upon the very best men in the profession, which was not always the case at present.

The President also considered at some length the proposition for the union of the American Medical Association and the Canada Medical Association, and stated the arguments for and against the proposed union. The principal objections to it were the present large dimensions of this Association; the fact that, owing to the use of two languages in Canada, joint meetings would be objectionable; the difficulty of arranging the expenses of a united body; and lastly, the confusion which would probably result from each place of meeting being so far distant from the preceding. On the other hand, the physicians in the United States should Associate themselves with a body of physicians all of whom had been educated under English influence, and many of whom had pursued their studies in England and obtained their diplomas there. Again, he was inclined to favor this union from the stand-point of civilization itself.

Dr. Bowditch suggested that the matter be referred to the Judicial Council, to report during the meeting on the feasibility of the union.

To the subject of the revision of the American Pharmacopœia, and the proposed rejection of the one in use and the substitution therefor of an entirely new, more modern, and more complete work on that subject, Dr. Bowditch referred at considerable length. He was not prepared to recommend any of the plans yet put forward, because more light was needed on this very important subject. He thought it wise to refer the whole subject to the Judicial Council.

Dr. Bowditch spoke of the importance of State Boards of

Health, and impressed upon his hearers the necessity of conversing with, or writing to, their representatives in Congress in reference to the museum and library of the Surgeon-General of the Army.

In closing, Dr. Bowditch said that the Association, for the sake of good learning in America, should cordially welcome to its meetings every prominent physician in the country, and if those who did attend the meetings would determine that nothing but what was excellent should be published in its works, then they would be doing a really noble work, and the Association would eventually claim the highest respect of the whole profession. It was growing stronger every year. It had enjoyed a perpetual youth, a stalwart manhood, and, he sincerely trusted, it would live to a genial old age.

On motion made by Dr. Brodie, of Detroit, the thanks of the Association were returned to its President for his interesting address. The address was referred to the Committee on Publication.

Dr. Brodie further moved that a committee of seven be appointed to report upon the recommendations embraced in the President's address.

The first Vice-President, Dr. N. J. Pittman, of North Carolina, announced the committee, as follows: Dr. W. B. Brodie, of Detroit, Dr. S. D. Gross, of Philadelphia; Dr. E. Grissom, of North Carolina; Dr. J. R. Smith, of U. S. A.; Dr. J. R. Bartlett, of Minnesota; Dr. J. P. White, of Buffalo; Dr. J. M. Toner, of Washington.

A number of papers were then read by title and referred to their appropriate sections, after which the Association adjourned to meet at 9.30 a. m. on Wednesday, June 6, 1877.

Wednesday, June 6.—Second Day.

The Association was called to order at 9.30 a. m. by the President. The minutes of the previous meeting were read and approved. A recess of ten minutes was taken to allow the delegations opportunity to select their representatives for the Nominating Committee, and report such selections to the Secretary.

The following volunteer papers were referred to their appropriate Sections: *On Plastic Splints*, by Dr. H. O. Marcy, of Massachusetts; *On Epithelioma*, by Dr. S. P. Breed; *On a New Speculum*, by Dr. E. A. Hildreth, of West Virginia; *On Conservative Surgery*, by Dr. I. N. Quimby, of New Jersey; *A New Instrument*, exhibited by Dr. H. I. Bowditch, of Boston.

PERMANENT MEMBERS.

Dr. Davis submitted the following names for election as per-

manent members: Drs. F. C. Shaefer, Chicago; W. H. Fitch, Rockford, Ill.; H. Chapman, Hudson, Mich.; G. E. Willard, Chicago; C. C. Hunt, Dixon, Ill.; J. J. Stone, G. Benedict, and J. H. Stewart, of Minnesota; J. N. O'Brien, Plymouth, Wis.; R. Dexter, and J. Vider.

REPORT ON THE PRESIDENT'S ADDRESS.

Dr. Brodie, of Michigan, chairman of the special committee appointed to consider the recommendations embodied in the President's annual address, submitted the following report:

"Your special committee, to whom was referred the recommendations in the President's annual address, respectfully report that they have had the same under consideration, and recommend as follows:

"1. The Smithsonian plan: It is believed that if the officers of the Sections should perform their duties promptly under the existing regulations, there would be no necessity for further examination.

"2. In the matter of a standing committee to procure papers on scientific subjects, it is or should be the duty of the chairmen of the Sections to obtain suitable matter for their respective Sections, at as early a time after their appointment as possible; and it is believed this would effect what the President proposes.

"3. On permanent members and representation, we do not think it best at the present time to make or suggest any change in the present plan of organization.

"4. On the union of this Association with the Canada Medical Association, we consider the same impracticable, and are of opinion that the present system of intercourse between the societies by delegates serves to meet the requirement.

"5. On the question of the Pharmacopœia, we deem it inexpedient at the present time to take any action in the premises."

On motion made by Dr. Bowditch, the report was laid upon the table.

REVISION OF THE U. S. PHARMACOPŒIA.

The hour of ten having arrived, Dr. E. R. Squibb, of New York, spoke on the revision of the United States Pharmacopœia. He stated that he was ready to report on this important matter, but saw from the programme that only one hour had been allowed for it. He would be unable to do more than to make brief allusion to the matter in that time, and was unwilling to dispose of it any such cursory manner. It was deserving of a long and deliberate consideration. Yet he was willing to conform with the wishes of the Association and do as directed.

Dr. Davis, on behalf of the Committee on Arrangements, said that though this subject had been assigned to this hour, it might be laid on the table, at the close of the hour, for further consideration.

It was decided, on motion of Dr. Gallagher, to hear Dr. Squibb to the end of the hour.

The report, as read by Dr. Squibb, involved a full résumé of the arguments *pro* and *con* on the revision of the Pharmacopœia. It involved copious quotations from Dr. Wood's well-known pamphlet on the subject. It denied the allegations of Dr. Wood that it was the intention, by the proposed innovations, to abolish the old Pharmacopœia, but asserted that the design was to improve the present plan by introducing new and important revisions. Nor was it designed to interfere with the "Dispensatory," but merely to have a Pharmacopœia without a Dispensatory. It was intended by the new revision simply to undertake a work which the old Pharmacopœia did not do. He explained that it was intended by the revision to make the Pharmacopœia explain its own assertions, or definitions, without the aid of a Dispensatory. He referred to many mistakes in the Pharmacopœia of 1877, showing little improvement since 1873, and which should be remedied. In refutation of the argument that the whole profession, by the proposed plan, would be under the control of one man, he averred that it should be remembered that that man would be the President of the American Medical Association; and that no more impropriety obtained in that than in the representation of an entire Government by one Minister, as often occurred in national matters.

The time having arrived for another order of business, the subject was referred to the Committee on Arrangements to appoint an hour for its further consideration.

The next order of business was an

ADDRESS BY THE CHAIRMAN OF THE SECTION IN PRACTICAL MEDICINE, ETC.,

which was delivered by Dr. P. G. Robinson, of Missouri. The address consisted of a review of the progress made in medicine during the past year. It had been fully shown that accumulations of sewerage and the like became centres of contagion. Especial attention was directed to the etiology of specific fevers, notably the typhoid, and reference was made to the outbreak which occurred in Lancashire, England, in consequence of using milk supplied from one dairy. The attention of the Association was called to an article in the July number of the *American Journal of Medical Sciences*, where the cure of a case of rabies canina by the use of strychnine was reported by Dr. Watson, of Jersey City. In his case there was no aversion to water shown, and for that and some other reasons a number of physicians held that it was not a true case of hydrophobia. The great question to be settled was that of diagnosis.

Dr. Robinson then passed to a consideration of the use of salicine and salicylic acid in the treatment of acute inflammatory rheumatism. These had been used with great advantage

in various hospitals, both abroad and at home, and there was no doubt that a means of alleviating this terrible disease had been found.

Reference was made to the value of counting the blood corpuscles in certain affections, and quotations made from several French authors.

In physiology reference was made to the labors of Ferrier, Fritz and Hitzig, Dalton, Mitchell, Hughlings Jackson, and others, regarding the localization of function in the brain, the function of the corpora quadrigemina, the duality of the vasomotor system, etc. During the past year several drugs had been brought into use, and special mention was made of the use of gelseminum in the treatment of facial neuralgia, salicylic acid as an internal and external remedy, erythroxylon coca, and several other articles. The address was well received, and referred to the Committee on Publication.

ADDRESS OF THE CHAIRMAN OF THE SECTION ON OBSTETRICS.

Dr. James P. White, of Buffalo, N. Y., delivered the address, and began by saying that the most notable event of the year was the formation of the American Gynæcological Society, and its transactions and publications were of great interest to the medical profession. Dr. White then called attention to a number of books and pamphlets in relation to this particular branch of medical study which were published last year.

Special and favorable mention was made of the writings of the late Dr. John S. Parry, and his book was reviewed to considerable length. The papers of Dr. Isaac E. Taylor, read before the New York Academy of Medicine, received special notice, and he was inclined to differ with Dr. Taylor as to the value of Cæsarean section when compared with craniotomy. The theory of Dr. Maxson, of Syracuse, N. Y., regarding the value of the knee and-elbow position in the management of cases of malposition of the fœtus, received favorable mention. Pneumatic pressure, by Dr. Campbell, of Georgia, was noticed and believed to possess some value. Dr. White was pleased to notice the growing sentiment in favor of the use of the obstetrical forceps, and exhibited a pair made in accordance with his own views regarding the construction of the instrument. The management of placenta prævia was under consideration when the hour expired.

COMMITTEE ON NOMINATIONS.

The Committee on Nominations was announced as follows: Dr. J. M. Keller, Arkansas; Dr- L. M. Lovelace, California; Dr. C. R. Bissell, Colorado; Dr. H. M. Knight, Connecticut; Dr. W. Marshall, Delaware; Dr. W. H. Ross, District of Columbia; Dr. R. Battey, Georgia; Dr. C. H. Rawson, Iowa; Dr. F. D. Fitch, Illinois; Dr. G. Sutton, Indiana; Dr. W. L. Schenck, Kansas;

Dr. D. W. Yandell, Kentucky; Dr. J. C. Egan, Louisiana; Dr. W. B. Cobb, Maine; Dr. H. O. Marcy, Massachusetts; Dr. C. H. Ohr, Maryland; Dr. L. Connor, Michigan; Dr. C. P. Adams, Minnesota; Dr. T. B. Lester, Missouri; Dr. W. M. Compton, Mississippi; Dr. S. G. Dearborn, New Hampshire; Dr. S. Lilly, New Jersey; Dr. J. P. Gray, New York; Dr. E. Grissom, North Carolina; Dr. W. W. Jones, Ohio; Dr. S. D. Gross, Pennsylvania; Dr. W. H. Palmer, Rhode Island; Dr. W. H. Geddings, South Carolina; Dr. D. J. Roberts, Tennessee; Dr. A. E. Carothers, Texas; Dr. William R. Hutchinson, Vermont; Dr. F. D. Cunningham, Virginia; Dr. J. C. Hupp, West Virginia; Dr. J. T. Reeve, Wisconsin; Dr. J. R. Smith, United States Army.

Dr. Nicholls, of the District of Columbia, President of the Association of Superintendents of Insane Asylums of the United States, was then introduced by Dr. N. S. Davis, and the Association adjourned to meet at 9.30 a. m. June 7, 1877.

THURSDAY, JUNE 7, 1877.—THIRD DAY.

The Association was called to order at 9.30 a. m. by the President.

After the transaction of the usual introductory business,

Dr. N. S. Davis, Chairman of the Committee of Arrangements, recommended the following gentlemen as

MEMBERS BY INVITATION:

Dr. H. P. Godfrey, of Berlin, Wisconsin; Dr. J. R. Moffatt, Prairie du Chien; Dr. R. G. Floyd, Whitehall, Wis.; Dr. J. P. Everett, Dixon, Ill.; Dr. Truman Miller, Chicago; Dr. Thomas R. Douglas, Pennsylvania; Dr. C. N. Fitch, Chicago.

The following gentlemen were recommended and elected

PERMANENT MEMBERS:

Samuel Tibbits, M.D., Kirkwood, Ill.; G. M. Chamberlain, M.D., Chicago; C. G. Simmons, M.D., Chicago; Chas. W. Chaffee, M.D., Chicago; William M. Kaull, M.D., Princeton, Ill.; James H. Wallace, M.D., Monmouth, Ill.; John A. Meek, M.D., Jonesboro, Ind.; Josiah Rodgers, M.D., Ripon, Wis.

Dr. Norman Bridge, Chairman of the Registration Committee, read the list of delegates enrolled since the first day. The whole number in attendance was 700.

Report from Judicial Council was made and adopted.

A communication from Dr. H. I. Bowditch upon the relative value of incision and aspiration in the treatment of empyema and hydrothorax was referred to the Surgical Section.

TREASURER'S REPORT—THE EXPENSE OF THE PRIZE ESSAY.

The Treasurer had the honor to report that, under positive instructions of the Association, the Prize Essay had been published at a cost of some $6000. This unusual outlay, in addition to the usual volume of the Transactions, left the treasury in an exhausted condition, as it had practically given to each member $9 in value for $5 received.

In this, his last report, after twenty-two years of service, it remained for the Treasurer to thank the Association for its long-continued confidence, and to regret that in leaving the treasury solvent, he could not leave a more abundant surplus.

The amount in the treasury was $172 72.

REPORT OF THE COMMITTEE ON PUBLICATION—REASONS FOR DELAY IN APPEARANCE OF VOLUME.

The Committee was constrained to acknowledge that the late date at which the volume for 1876 (vol. xxvii. of the series) was issued needed explanation. The delay of a few months subsequent to the annual meeting was, of course, due to the fact to which attention has many times been called, that the edition which it was proper to print could not be arrived at except by means of answers to circulars sent to the members It was unpleasant to find fault at all, but to be compelled to complain of annually recurring neglect, if not downright inefficiency, was an exceedingly ungracious task. The Committee on Publication was profoundly convinced that the proceedings of a medical body like the American Medical Association could be adequately reported by men of medical education alone. No skill or training could compensate for the lack of this qualification. And yet for several years past the committee has been annually delayed by a mass of copy prepared by professional reporters, of which a large portion had been unfit to be put into the hands of the printer. Had it not been for the kind coöperation of several members who had attended the last session of the Association, and who had participated in the discussions, the Committee of Publication would have been hopelessly embarrassed, and would have been forced to eliminate paragraph after paragraph from the minutes. To these causes the delay in the issue of the volume have been principally due; and in view of them the Committee thought it could consistently claim the indulgence of the Association.

The Prize Essay was put through the press as promptly as the very elaborate character of the work permitted.

Of volume xxvii., 1250 copies were printed; 1207 copies have been distributed to members, and 43 copies are on hand.

Of the Prize Essay, 1250 copies were printed; 1067 copies have been distributed, leaving 183 copies on hand.

PRIZE ESSAYS.

Dr. Davis, from the Committee on Prize Essays, reported that only one essay had been submitted in time to receive examination, and that the committee did not regard as entitled to receive the prize offered by the Association.

Another essay had been received, but it came too late to have an examination, and it was recommended that the author have the privilege of withdrawing his essay. It was recommended that it be presented for competition next year, sufficiently early to secure examination. The report was adopted.

LIBRARIAN'S REPORT.

Dr. Atkinson, as Secretary, read the report for the year of William Lee, Librarian. It showed that 187 distinct titles had been added to the library the past year, making the number now embodied in the library 817 distinct titles, and 2034 volumes. The report showed that the library, on general principles, was in good condition.

ADDRESS OF THE CHAIRMAN OF THE SECTION ON STATE MEDICINE AND PUBLIC HYGIENE.

Dr. Ezra M. Hunt, of New Jersey, read an elaborate and able paper on the subject embraced within his jurisdiction. He reviewed all that many men had done to diffuse health and life-saving practices throughout the world the past year. He spoke of what was needful for more salutary and sanitary medical treatment of the public. He dwelt upon the ways by which this important subject should be brought to the notice of the profession, as one of the profoundest importance. He urged that the Association, as representing the profession largely, should urge the more thorough teaching of this sanitary law in all the medical schools. He thought the profession had reason to congratulate itself that this country was fast perfecting its system of public hygiene. The address was properly referred.

THE U. S. PHARMACOPŒIA.

Dr. E. R. Squibb resumed his report upon the above subject at the point where it was discontinued in yesterday's proceedings. He combated with logical force the arguments against the proposed revision, and with equally forcible diction spoke of the advantages of the new scheme. He closed his remarks by saying that there were three courses for the Association to pursue: First, to lay the whole matter on the table, leaving it exactly as it was, on the ground that the Association was not necessarily involved in revising the Pharmacopœia at all; second, the Association might make a Pharmacopœia, such as it saw fit, allowing

it to take its chances with others. He thought this latter plan would not eventuate a Pharmacopœia which would be accepted by the army and navy. The third plan was for the Association to appoint a committee to consider the matter in detail and report in 1878, on which occasion all the State societies should send their delegates, thoroughly instructed as to their ideas on the subject.

Dr. Squibb moved that the whole matter be laid upon the table, but objection being made by Dr. Davis that such a proceeding would deprive the opponents of the revision of the Pharmacopœia from expressing their sentiments, Dr. Squibb withdrew his motion and the matter was thrown open for discussion.

Dr. Squibb wished to state that he did not appear as the advocate of either one or the other plan, but was willing to abide by the decision of the Association. He simply preferred that the first course should be followed, as by laying the matter on the table he would be relieved from further responsibility on this mooted question.

Dr. H. C. Wood, of Philadelphia, who had issued a pamphlet in opposition to the scheme, from which Dr. Squibb had read, spoke at some length. He maintained that no action was necessary to be taken by this Association, and that the only thing necessary to make the Pharmacopœia better was for the physicians of this country to awaken to a realization of their duty to make it so, of attending the conventions and doing their duty towards improving the book.

He deeply deplored the fact that this matter was awakening and protracting dissension among the elements of this Association.

Dr. Brodie, of Detroit, submitted the following resolution:

"*Resolved*, That a committee of five be appointed by the President, to whom shall be referred the paper of Dr. Squibb and other papers on the subject of the Pharmacopœia, with full authority to examine into the whole question as to the propriety of this Association being a factor in whole or in part in this publication, and report at the next annual meeting."

Pending the adoption of this resolution, Dr. N. S. Davis took the floor, and indorsed with earnestness the remarks of Dr. Wood. He regretted that this old matter should drag along through the annual meetings, occasioning discord and disputation. He thought that the only duty this Association had to perform in instituting a new Pharmacopœia was to see to it that such improvements were made as were necessary.

Dr. Brodie withdrew his resolution, and Dr. Davis moved that the subject be postponed indefinitely. Carried.

REPORT OF THE NOMINATING COMMITTEE.

Dr. S. D. Gross, Chairman of the Committee, made the following report, which was accepted and adopted by the Association.

For President, Dr. T. G. Richardson, of Louisiana. Vice-Presidents: Dr. J. P. White, of New York; Dr. M. Gunn, of Illinois; Dr. G. W. Russell, of Connecticut; Dr. A. Dunlap, of Ohio. For Chairman of the Section of Medicine, Materia Medica and Physiology, Dr. A. L. Loomis, of New York; for Secretary, Dr. J. H. Etheridge, of Illinois. Chairman of Section of Obstetrics and Diseases of Women and Children, Dr. E. W. Jenks, of Michigan; for Secretary, Dr. H. A. Marcy, of Massachusetts. Chairman of Section of Surgery and Anatomy, Dr. H. H. Smith, of Pennsylvania; for Secretary, Dr. E. Z. Early, of Arkansas. Chairman of Section on Medical Jurisprudence, Chemistry, and Psychology, Dr. W. Kempster, of Wisconsin; for Secretary, Dr. E. A. Hildreth, of West Virginia. Chairman of Section of State Medical and Public Hygiene, Dr. J. L. Cabell, of Virginia; for Secretary, Dr. E. J. Marsh, of New York.

The same committee also recommended that the next annual meeting be held at Buffalo, N. Y., commencing on the first Tuesday in June, 1878.

The Association then adjourned, to meet at 9.30 a. m., Friday, June 8, 1877.

Friday, June 8, 1877.—Fourth Day.

The Association was called to order at 9.30 a. m.

The President, Dr. H. I. Bowditch, in the chair.

The minutes of the last meeting were read and approved.

Dr. S. Lilly presented a memorial from the New Jersey State Medical Society with regard to the U. S. Pharmacopœia. It was entered upon the minutes.

Members by Invitation and Permanent Members.

Dr. C. M. Fitch, of Chicago, was elected a member of the Association by invitation; and Drs. L. H. Chew, of Napierville, Ill., and S. O. Ritchie, of Chicago, were elected permanent members.

A list of charges were presented against the Michigan State Medical Society, the import of which was that it had aided and abetted the Michigan University in graduating scholars in an irregular and exclusive medical course of study. Referred to Judicial Council.

State Boards of Health.

Dr. Atkinson submitted the report of the Permanent Secretary, made in conformity with an order issued in 1875, on State Boards of Health, showing that circulars had been forwarded to the Executive of each State in which a health board had not already been organized, urging the need and utility of such boards, and soliciting that the subject be brought before the

Legislature; that State Boards now existed in Alabama, California, Colorado, Georgia, Illinois, Louisiana, Maryland, Massachusetts, Minnesota, Mississippi, North Carolina, New Jersey, Tennessee, Virginia and Wisconsin, and that resolutions had been introduced into other State Legislatures to effect the establishment of boards; and suggesting that the committee be continued.

This report was ordered to be entered upon the minutes.

MEDICAL OBSERVATION AND RECORD.

The Secretary also read a report made by Dr. Edward Seguin, of New York, and Dr. J. J. Woodward, U. S. A., on the subject of Uniformity in Medical Observation and Record, showing the paramount need that existed for such uniformity, and recommending that the Association send delegates to the International Convention to be held in Geneva, in 1877–78, who should advocate the devisement and institution of a plan to secure more systematic operation in that matter. The report was adopted.

The Secretary moved that Thomas M. Drysdale, of Philadelphia, be appointed a delegate to foreign Medical Associations, and that Clifton E. Wing, of Boston, be appointed delegate to the Canada Medical Association. These gentlemen were so appointed.

The minutes of the Judicial Council were entered without reading.

REPORTS FROM SECTIONS.

Reports from the Chairmen of the Sections on Obstetrics, State Medicine and Public Hygiene, Surgery and Anatomy, Medical Jurisprudence, and Practice of Medicine, were duly submitted by the Secretary and referred to the Committee of Publication.

REPORT ON NOMINATIONS.

The Nominating Committee submitted the following recommendations for officers in addition to those reported yesterday:

Assistant Secretary—Dr. E. W. Brush, New York.

Committee of Arrangements—Drs. Thomas F. Rochester, J. F. Miner, E. R. Barnes, C. C. Wyckoff, M. B. Folnelle, W. C. Phelps, E. W. Brush, all of New York.

Committee of Publication—Drs. W. B. Atkinson, T. M. Drysdale, A. Fricke, S. D. Gross, C. Wistar, R. J. Dunglison, of Pennsylvania, and William Lee, of the District of Columbia.

Treasurer—Dr. R. J. Dunglison, of Pennsylvania.

Librarian—Dr. William Lee, of the District of Columbia.

Committee on Library—Dr. Johnson Elliott, District of Columbia.

Members of Section of State Medicine and Public Hygiene—Drs. J. Cochran, Alabama; A. M. Carrigan, Arkansas; W. F.

Cheney, California; C. Denison, Colorado; C. A. Lindsley, Connecticut; William Marshall, Delaware; T. Antisell, District of Columbia; J. P. Logan, Georgia; H. A. Johnson, Illinois; T. M. Stevens, Indiana; A. G. Field, Iowa; D. W. Stormont, Kansas; S. Brauders, Kentucky; S. M. Bemiss, Louisiana; E. F. Sanger, Maine; C. H. Ohr, Missouri; H. I. Bowditch, Massachusetts; H. P. Baker, Michigan; C. M. Hewitt, Minnesota; Wirt Johnston, Mississippi; J. W. Trader, Missouri; M. W. Russell, New Hampshire; E. M. Hunt, New Jersey; E. Harris, New York; J. Comegys, Ohio; B. Lee, Pennsylvania; E. M. Snow, Rhode Island; R. A. Kinlock, South Carolina; Z. A. Atchison, Tennessee; A. E. Carothers, Texas; I. L. Cabell, Virginia; L. C. Butler, Vermont; John Frissell, West Virginia; E. S. Griffith, Wisconsin; G. W. Belton, Florida; C. J. O'Hagan, North Carolina; John S. Billings, United States Army; Joseph Wilson, United States Navy.

Committee on Necrology—Chairman, Dr. J. M. Toner, District of Columbia; Secretary, W. H. Ross, District of Columbia; Members, Drs. J. W. Barclay, Alabama; T. E. Murrell, Arkansas; Martin Baker, California; G. W. Russell, Connecticut; L. P. Bush, Delaware; W. W. Johnson, District of Columbia; T. S. Hopkins, Georgia; J. H. Hollister, Illinois; J. Moffatt, Indiana; S. P. Thrall, Iowa; L. P. Yandell, Sr., Kentucky; S. C. Gordon, Maine; A. L. Morris, Massachusetts; D. J. McKern, Missouri; W. W. Breakey, Michigan; E. C. Cross, Minnesota; A. J. Steele, Missouri; John Blaine, New Jersey; N. J. Pittman, North Carolina; J. Jones, Louisiana; George M. Smith, New York; George Mitchell, Ohio; W. C. Warriner, Oregon; H. C. Wood, Pennsylvania; C. W. Parsons, Rhode Island; A. N. Pally, South Carolina; J. B. Lindsley, Tennessee; J. H. Stalnaker, Texas; W. D. Hooper, Virginia; Darius Mason, Wisconsin; O. F. Fassett, Vermont, P. F. Whitehead, Mississippi; W. L. Shenck, Kansas; L. G. Hill, West Virginia; R. W. Hazlett, United States Army; J. Wilson, United States Navy.

Judicial Council—Drs. J. K. Bartlett, Wisconsin; F. Staples, Minnesota; E. Grissom, North Carolina; W. F. Robertson, ——; S. Lilly, New Jersey; W. M. McPhutres, Wisconsin; and A. Z. Woodward, Vermont.

The foregoing in place of the seven whose term of office expires at this meeting by constitutional limitation. Dr. P. O. Hooper, Arkansas, in place of Dr. A. Dunlap, whose term expires in 1878.

Committee on Prize Essays—Drs. E. M. Moore, T. Lothrop, W. Miner, H. R. Hopkins, and E. W. Dean, Buffalo.

The report was adopted.

REPEAL OF THE TARIFF ON QUININE.

A series of resolutions were introduced by Dr. J. W. Singleton, of Paducah, Kentucky, indorsing the Morrison bill in Con-

gress in declaring that quinine should be relieved of the tariff imposed upon it, and were unanimously passed.

Dr. H. M. Smith, of Philadelphia, introduced resolutions expressing the regret of the Association at the illness of the former President, Dr. George B. Wood, and extending sympathy to him in his illness.

Dr. J. W. Singleton, of Kentucky, introduced a resolution expressive of the satisfaction felt at the unanimity fast coming to exist between the profession in the North and South, which was seconded by Dr. Grissom, of North Carolina, and unanimously adopted by the Association.

Dr. Edward Seguin, of New York, was made Chairman of the delegation to attend the International Convention to be held in Geneva; and Dr. Lewis A. Sayre was elected delegate to the British Medical Association.

Thanks were tendered to Francis Gurney Smith, for his efficiency in transacting the duties of Chairman of the Committee of Publication, from which position he has retired, after many years' service.

A similar compliment was paid to the retiring Treasurer, Dr. Caspar Wistar.

An amendment to the Constitution was introduced making provision for the formation of a

SECTION ON OPHTHALMOLOGY AND OTOLOGY.

It went over under the rule.

RECOMMENDATIONS CONTAINED IN THE PRESIDENT'S ANNUAL ADDRESS.

Dr. Bowditch at this point resigned the chair, and took up the subject of the recommendations in his annual address, which had, at a previous session, been laid upon the table, through a motion to refer them to a committee. He deplored the system now existing for publishing the papers presented at the various sections. Many of them were published without being read, and were not fit to be published at all. He regretted this state of affairs exceedingly, and especially that such publications should be permitted to go abroad. He submitted the following resolution:

"*Resolved*, That the Association recommend to the Chairmen of the Sections, at any place at which we may hereafter meet, the propriety of obtaining from our ablest associates in various parts of the country papers to be presented to the Sections, and that due notice of the names of the writers be given in the medical journals before the meeting."

He moved also that all papers to be published be submitted to the examination of experts whose names should be unknown, and only the most worthy should be published.

These resolutions elicited general discussion and numerous amendments.

On motion of Dr. James P. White, of Buffalo, the entire matter was referred to a committee of five, to report at the next annual meeting, of which committee Dr. Bowditch and Dr. N. S. Davis were to constitute two members.

Dr. Woodward moved the adoption of the following resolution:

"*Resolved*, That from this meeting and hereafter the practice of printing in the Transactions of the Association the so-called verbatim reports of the debates in the Sections be discontinued, and that the reports of the Sections be limited to the papers presented and recommended by the Sections for publication, and such minutes as may be actually read before the Section." Adopted

Dr. Hildreth, of West Virginia, moved that no paper be referred to the Committee on Publication unless it had actually been read before the Section. Laid on the table.

A communication was read from members of the profession in Buffalo, expressing satisfaction at the decision of the Association to hold its next meeting in that city, and promising hospitality.

Dr. Bowditch resumed the chair, and Dr. Brodie, of Michigan, submitted resolutions, tendering thanks to the people of Chicago for their hospitality during their present meeting, to the Committee of Arrangements, etc.

Pending the adoption of these resolutions, Dr. Woodward, of Washington, made a few remarks pleasantly eulogistic of the city of Chicago and its citizens.

Dr. E. R. Squibb rose to a question of privilege regarding the disposal of his report upon the U. S. Pharmacopœia.

On motion, made by Dr. Toner, of Washington, Dr. Squibb was permitted to withdraw his report.

President Bowditch invited the President-elect, Dr. T. G. Richardson, of Louisiana, to a seat upon the platform, and then delivered his retiring address. He thanked the Association for the distinction it had conferred upon him the past year, and closed his remarks by congratulating the Association upon the era of good feeling at present existing between all sections of our country. "Last year South Carolina extended her right hand of fellowship to Massachusetts, and this year Massachusetts extends her hand to Louisiana." God bless the Union, and let all the people say Amen!"

The act of hand-shaking between Dr. Bowditch and Dr. Richardson was greeted with a burst of applause.

Dr. Richardson made an appropriate response, and as he remarked that God was to be praised that we were again an "unbroken National Family of States," the applause was most hearty. He thanked the Association for the honor it had conferred upon him.

The Association then adjourned to meet in Buffalo, N. Y., the first Tuesday in June, 1878.

SECTION ON THE PRACTICE OF MEDICINE.

Dr. P. G. Robinson, of Missouri, Chairman.
Dr. B. A. Vaughan, of Mississippi, Secretary.

TUESDAY, JUNE 5, 1877.—FIRST DAY.

The Section met at 3 p. m., and was called to order by the Chairman.

TREATMENT OF CROUPOUS PNEUMONIA.

In the absence of Dr. A. B. Palmer, of Ann Harbor, Michigan, the author of a paper on the above subject, it was read by Dr. N. S. Davis, of Chicago.

The paper principally dealt with the effects of quinine in the treatment of acute pneumonia. After detailing the nature of the disease, and describing the various methods of treatment, Dr. Palmer submitted his particular method. When called to a patient within twelve or twenty-four hours after the chill, or at any time before any considerable exudate has occurred, he immediately gave from six to ten grains of quinine, together with from one-fourth to one-third of a grain of morphine, which almost invariably, in a short time, from half an hour to two hours, induced free perspiration and a reduction of the temperature. Then he repeated the quinine in doses of from four to eight grains once in from two to three hours, and unless all pain and special uneasiness was relieved, he added another but usually a smaller dose of morphine in four or six hours, but by all means continuing the quinine in one of the last-mentioned doses until from thirty to fifty, and sometimes sixty, grains were given. Sometimes from twenty to twenty-five grains would be sufficient, given in these divided doses, or, if preferred, in doses somewhat smaller, but more frequently repeated. But as the large quantity was harmless and might be needed, he preferred to give at least thirty, and oftener as much as forty grains in from twelve to twenty-four hours. The effect desired, and certainly as a rule produced, was a decided reduction of temperature, a marked diminution in the frequency of the pulse, a decided moisture of the skin, or free sweating, a slower and more easy respiration, a relief from pain and the feeling of fulness in the chest, a diminution of the cough and of the tenacious and bloody character of the expectoration; and, in short, not only was there a checking of the fever, but of all the evidences, general and local, of the pulmonary engorgement and inflammation, and the quantity of medicine to be given depended much upon the completeness of the effects produced. The slight deafness and ringing in the

ears, which might or might not result from these doses, was a matter of very little consequence, was almost always temporary, and should not influence the quantity given. A small quantity of quinine would produce these phenomena with some, while large doses would fail to do so with others, and neither in pneumonia nor in ague were they the measure of the medicinal effect of the remedy or an index of the quantity that would be required or borne. As a rule, all the treatment required after this was a gentle laxative, or, if the tongue was much coated, a few grains of blue mass, followed in a few hours by a mild saline cathartic, and that in turn followed by some mild eliminative mixture.

Discussion followed, and was participated in by Drs. Gallagher, of Pennsylvania; Hibbard of Indiana; Scott, of Ohio; Murphy, of Cincinnati; Rooker, of Indiana; Yandell, of Kentucky; Todd, of Indiana; Carpenter, of Iowa, and Bailey of Kentucky.

It is easy to imagine a line of discussion which might be pursued upon this subject, and so it was that blood-letting, tartar emetic, cold baths, Ziemssen's Cyclopædia and all its dangerous and beneficial teachings were thoroughly canvassed. The opinion seemed to prevail that uncomplicated pneumonia in an otherwise healthy subject had a tendency to recovery.

Dr. John Morris, of Maryland, then read a paper upon

"THE EFFECTS OF REMEDIES IN SMALL DOSES,"

in the course of which he deduced the following: First, that the true physiological effect of remedies might best be obtained by the administration of small doses frequently repeated [doses of calomel, iron, quinine, digitalis, tartarized antimony, ipecac, opium, gelseminum, squills, ergot, etc.]; second; that medicines thus given were accumulative in their operation; third, that the effect of remedies is greatly increased by combination, the manner of preparation, the time and mode of administration, etc.; fourth, that large doses of medicine frequently acted as irritants, that they produced an abnormal state of the blood, as was evidenced by such conditions as narcotism, alcoholism, iodism, ergotism, bromidism, etc.; fifth, that more special attention should be given at the bedside to the influence of remedial agents, to the end that a greater certainty may be exercised in their prescriptions.

Dr. Morris asked that he might be allowed the privilege of printing this paper in any medical journal he might select as having been read before that Section of the American Medical Association. The request was granted.

The Section then adjourned.

WEDNESDAY, JUNE 6, 1877.—SECOND DAY.

The Section was called to order at 3 p. m., by the Chairman, Dr. P. G. Robinson.

NEW INSTRUMENT.

Dr. H. I. Bowditch, of Boston, exhibited a mechanical appliance consisting of bands so arranged as to keep the head and chest in a favorable position during violent attacks of asthma. Dr. Bowditch mentioned a number of cases in which this appliance had been of great efficiency. The inventor of the apparatus was Dr. George E. French, of Portland, Me. Dr. Squibb, of Brooklyn, moved that a cut of the apparatus exhibited by Dr. Bowditch be inserted in the volume of Transactions.

REPORT ON CLINICAL AND METEOROLOGICAL RECORDS, BY DR. N. S. DAVIS, OF CHICAGO.

Dr. Davis explained that the object of this work was to get at the actual etiology of acute diseases, a subject of which very little was known. It was sought to determine the relation between meteorological conditions and the origin of disease. He gave the figures in the case of bowel disease, by way of showing what the work was. In his own practice, in 1875, he had one hundred cases of bowel complaint, of which fourteen began in June, sixty-eight in July, eleven in August, and seven in October. The mortality tables showed that the deaths from bowel complaints were about alike in July and August. This discrepancy was explained by the fact that many persons who were taken sick in July do not die till August. In the same months of 1876, he had ninety-three cases of bowel complaints. Fifteen began in June, of which nine were diarrhœa, five cholera morbus and infantum, and one was dysentery. Fifty-five began in July, of which twenty-eight were diarrhœa, fourteen cholera morbus, and thirteen dysentery. Twenty-three began in August, of which two were diarrhæa, four cholera morbus, and seventeen dysentery. Dr. Davis read corresponding figures from Davenport, Omaha, and Cairo. In these four cities, there were in the practice of the physician reporting, in 1875, two hundred and ninety cases of bowel complaint, of which forty-four began in June, one hundred and fifty in July, sixty-seven in August, and twenty-nine in September. Not a case began in the other eight months of the year. In 1876, the observers in three of the cities reported one hundred and sixty-nine cases, of which all but four cases began in the four months named. Of the one hundred and sixty-five cases in those four months twenty-one began in June, eighty-three in July, forty-three in August, and eighteen in September. The figures showed that more than half the cases in this climatic zone began in July.

Omitting cases of dysentery, there were in 1875, in four cities, two hundred and twenty-nine cases of bowel complaint, of which thirty-seven began in June, one hundred and thirty-two in July, forty in August, and fourteen in September. Of the sixty-one cases of dysentery, seven began in June, eighteen in July,

twenty one in August, and fifteen in September. In 1876, omitting dysentery, there were one hundred and twenty-two cases, of which twenty-four began in June, sixty-five in July, twenty in August, and thirteen in September. Of the forty-seven cases of dysentery, one began in June, eighteen in July, twenty-three in August, and five in September. It would appear from these facts that the causes operating to produce diarrhœa, cholera morbus, and cholera infantum began in June and attained their maximum development in July, while the causes of dysentery attained their maximum in August. The causes of these diseases depended for their activity on conditions found only in the warm months.

Looking more particularly into the dates of the cases under examination, Dr. Davis showed that of the fourteen cases in his practice in this city in June, 1875, all began after the 19th of the month. Of the forty-four cases in the four cities beginning in June, 1875, only five began earlier than the 19th. His conclusion was that the bowel affections, so characteristic of this temperate climate, began invariably with the first week of continuous high temperature, and that every subsequent occurrence of several days and nights of continuous high temperature caused new attacks to be increased in number throughout the month of July, less in August, and still less in September; that it was not simply the extreme of heat, but its duration, which determined the number of attacks; that this continuous high heat, to be efficient in producing these affections, must follow a protracted season of cold; and that, if we compared, these deductions directly with statistics of mortality, we should find them to conform in every particular in that the high rate of mortality followed exactly the same line. That fact was regarded as one of great importance in connection with sanitary measures which were to be adopted for the protection of life in infants; preventive measures must strike with the first week of consecutive high temperature. These conclusions were corroborated by quotations from mortality tables.

INFLUENCE OF COLORADO CLIMATE ON CONSUMPTION.

Dr. Charles Denison, of Colorado, continued the report made last year upon the above subject, by citing the history of several cases of consumptives who had been benefited by a residence in high altitudes. Dr. Denison's argument gave a large amount of statistical information concerning the history of Colorado as a sanitarium. A very full record of six unfavorable and six favorable phthisical cases was given by way of illustrating the effects of the climate upon patients differentiated by variety of affection. The conclusion reached by the essayist most interesting to the general public would seem to be, that he believed the generally accepted idea that consumption could only be successfully treated climatically during its first stages was not an absolute truth. "The

truth was, the systemic influence of extensive disease in the first was often much greater than slight inroads of phthisis in the third stage." The favorable influence of high altitudes in phthisis was best shown in the incipiency of chronic inflammatory and hemorrhagic cases, and in others in proportion as these were characteristic. The unfavorable influence of high altitudes in phthisis was shown as the disease approached or was complicated with the following conditions: Cardiac disease associated with increased labor and abnormal activity; the stage of "softening" in acute cases (especially with uniformly rapid pulse and high temperature) associated with extensive deposit, variable nervous state, and lack of courage to do, in order to be well.

Dr. Bowditch, of Boston, regarded it as unadvisable to send patients away from home who had reached a certain stage of phthisis. In cases in which the disease was not far advanced change of climate might be beneficial.

Dr. Ulrich, of Pennsylvania, believed the greatest benefit would come from a radical change in the surroundings of the patient, both mental and physical, and that such change could be effected at home.

Dr. Benton, of Cleveland, favored the high altitude of Colorado because it was inhabitable. Other high altitudes might not be inhabitable.

Dr. Kingsley, of St. Louis, referred to the fact that patients went from St. Louis to Colorado, improved considerably, returned, and shortly after their return died because of the rapid development of the disease. The paper was further discussed by Drs. Scott, of Ohio, Heddens and Kingsley, of Missouri, and Steeman, of Ohio. The report was referred to the Committee on Publication, and the Section adjourned.

Thursday, June 7, 1877.—Third Day.

The Section was called to order at 3 p. m., Dr. P. G. Robinson, Chairman, in the chair.

Report of the Committee on Bovine Vaccination, by Dr. H. A. Martin, of Massachusetts, Chairman.

The report was entirely the work of one member of the committee, and he alone was responsible for what was said. The report was divided into sections embracing a historical account of animal vaccination; description of animal vaccination; alleged disadvantages; statistics; peculiarity of animal vaccination; advantages of animal vaccination; and suggestion regarding the proper method to make animal vaccination accessible to the profession gratuitously, instead of the matter of bargain and sale, as it is at present. Animal vaccination was introduced by Dr. Martin, in the year 1870.

The alleged disadvantages had been:

1. That it was dangerously violent; that was an incorrect statement. It was also exempt from erysipelas.

2. Communication of other diseases. There was no authentic case in which disease had been communicated except herpes circinatus.

3. That it did not take easy. That was not true.

4. That it did not keep well. Animal virus would keep for an indefinite length of time.

5. Vaccination with living lymph was an uncertain process. That objection was believed to be groundless, and that vaccination with fresh animal lymph, if properly managed, need not fail.

6. It was expensive. That should not be so, and the Government should establish stables and furnish an unlimited supply gratuitously.

The alleged advantages were:

1. An unlimited supply of virus could be furnished with exceptional security.

2. Impossibility of contamination from disease.

3. It was always protective when vaccination and revaccination were practised. Humanized virus was not always protective.

The report was referred to a special committee, consisting of Drs. Bowditch, Wheeler, and Wigglesworth, of Boston.

THE RECOGNITION AND MANAGEMENT OF THE GOUTY STATE IN DISEASES OF THE SKIN.

Dr. L. D. Bulkley, of New York, read a paper upon the above subject, in which he desired from a clinical stand-point, to impress upon the minds of the profession the value and necessity of recognizing the gouty state in many diseases of the skin. The subject was considered under three heads:

1. The importance of recognizing certain skin diseases which are the early manifestations of gouty disease.

2. The importance of recognizing the gouty state in connection with certain diseases of the skin.

3. Management of the gouty state, especially in the early period when the skin lesions are most apt to manifest themselves.

The evidence of the gouty state was considered in detail.

The paper was discussed by Drs. Hibbard, of Indiana; Cabell, of Virginia; Scott, of Ohio; Ulrich and Duhring, of Pennsylvania. The paper was referred to the Committee on Publication.

CHRONIC DISEASES OF THE RESPIRATORY SYSTEM.

Dr. F. N. Davis, of Chicago, reported the result obtained by

analysis of 965 cases of chronic pulmonary disease which had fallen under his observation during the year 1875. The report was referred to the Committee on Publication.

It was discussed by Drs. Scott, of Ohio; Lester, of Missouri; Waterman, of Indiana; Ulrich and Gallagher, of Pennsylvania.

The following papers were read by title and referred:

Therapeutics of Cancer, by Dr. Theodore A. McGraw, of Detroit.

Climatic Resorts of Europe and America Compared, by Dr. George E. Walton, of Cincinnati.

The Section then adjourned.

SECTION OF OBSTETRICS AND THE DISEASES OF WOMEN AND CHILDREN.

Dr. James P. White, of Buffalo, Chairman.
Dr. Robert Battey, of Georgia, Secretary.

Tuesday, June 5, 1877.—First Day.

Dr. Byrd, of Illinois, presented a paper, which was read by Dr. Battey,

ON SOME OF THE DISEASES REQUIRING DILATATION OF THE FEMALE URETHRA.

A number of cases were cited. The first was that of a vascular growth entirely surrounding the meatus of the urethra. It had been treated as a stricture. With the écraseur and scissors a small vascular growth was removed without difficulty. Subsequent dilatation of the urethral canal entirely cured the urethrismus. The case was illustrated by drawings of the parts, with the growth *in situ* and after removal.

Other cases were cited to illustrate the method and ease of dilating the female urethra, for vesical tenesmus, etc.

In the discussion, Dr. Marcy, of Massachusetts, said that in one case he had removed a growth as large as a cherry. The removal was not dangerous, and three years had elapsed without a recurrence.

Dr. Smith, of Iowa, had removed such growths in two cases with the scissors, without difficulty or danger.

Dr. Jenks, of Michigan, remarked that in all instances these growths should be removed, and that no complicated instruments were needed to dilate the female urethra. He used conical rectal bougies of different sizes, until the finger could be easily passed.

Dr. Jackson, of Chicago, thought it often difficult to find these flat and but slightly elevated growth within the urethra. To facilitate the diagnosis and removal, he used a conical glass speculum, with a fenestrum, into which the growth dropped.

The base of the growth he usually touched with fuming nitric acid.

Dr. Marcy, of Massachusetts, said that he had always used the method and speculum spoken of by the last gentleman, thinking that was the usual procedure.

Dr. Kimball, of Massachusetts, presented a paper, read by Dr. Martin,

ON EXTIRPATION OF THE UTERUS.

After giving an account of the early history and results of the operation, and considering in detail the observations of Péan and Caternault, the writer proceeded to examine the question, Is the operation ever justifiable? It was a sad comment that nearly nine in ten cases resulted in death. In Scotland all cases were fatal except the three successes of Keith. Death was caused by shock, hemorrhage, inflammation, and septicæmia.

A case was detailed which the reader said might be called a specimen case. A woman presented herself with a hard, movable tumor, measuring seven or eight inches in its longest diameter, which was easily recognized as an interstitial fibroid. The patient was sent away, and told that nothing could be done for her. Two years afterwards she returned, but so changed that she was not recognized, nor was the diagnosis of the tumor at that time made out. The patient insisted upon an operation, which was undertaken under the conviction that the tumor was as likely to be ovarian as uterine. Upon opening the abdomen an unusual appearance was presented by the omentum, which had never before been met with by the writer, namely, innumerable cysts, varying in size from a robin's egg to a pea, everwhere studded the omentum. The omental mass was strangulated and cut off. The entire uterine mass was then removed; it weighed thirty one pounds. The long pedicle was stitched into the lower end of the abdominal incision. Recovery was perfect at the end of the twelfth week.

Without denouncing the operation, it was one which was justifiable only in extremely rare instances. During a period of twenty years it had seemed to him justifiable in but two or three instances. Undoubtedly it was most often performed on account of an error in diagnosis.

Dr. Martin, of Massachusetts, spoke of the noted New England case, in which it was not known till after the operation that the uterus had been removed; the operation was recovered from.

Dr. Kimball, of Massachusetts, feared it might look like vanity, but the first operation which he did in 1853 was the first, so far as he knew, which was undertaken deliberately, the diagnosis being established. Altogether, he had operated twelve times, with six recoveries. One was an instance of pedunculated fibroid, and in another instance the uterus was amputated through its body. Trenholme has once removed the uterus on account of

the rupture of the cyst, with symptoms of septicæmia; the woman died.

The writer spoke of one class of cases in which the operation was especially contraindicated: those in which the growth of the tumor was downward, occupying the pelvic excavation.

Dr. Reamy, of Ohio, alluded to a series of five cases belonging to Dr. Thomas Wood, of Ohio, in which there were three recoveries.

Dr. Smith, of Iowa, had once performed the operation under an error in diagnosis. A trocar was driven into the intumescence which drained away some two ounces of amber-colored liquid; it was thought to be from an ovarian cyst, and gastrotomy was performed. The tumor was found to be uterine, and the mass was removed; it weighed fifteen pounds. Upon the upper surface of the growth a collapsed cyst was found into which the trocar entered. The woman died on the sixth day.

Dr. Sims, of New York, regarded the paper a valuable contribution to the literature of the subject, and its appearance now as most timely, especially as some were carried away with the idea that the operation should be performed much more often. He believed the operation was sometimes justifiable, but was not always so in Péan's cases. He since had performed the operation three times; in two instances the patient died of shock, and the third woman died of septicæmia; in this case there was sloughing of the broad ligament, and some eighteen ounces of pus were found in the abdominal cavity.

Dr. Jennings, of Arkansas, inquired of Dr. Kimball, what percentage of cases died of septicæmia.

Dr. Kimball, of Massachusetts, replied that peritonitis and septicæmia usually coexisted. One case died from hemorrhage; the rest died from peritonitis and septicæmia. In one case there was a most singular manifestation of septicæmia. The patient had survived three weeks, when a lump appeared in one parotid region, which grew so rapidly that the poor woman was asphyxiated.

Dr. Marcy, of Massachusetts, asked him how long after the recovery did the patients live.

Dr. Kimball, of Massachusetts, replied that so far as he knew they were all now alive, except in one instance. In one case he had removed an ovarian tumor eleven years before ablating the uterus. In another subject he removed the ovaries with the uterus.

Dr. Atlee, of Pennsylvania, remarked that he was physically unable to take part in the discussion of this interesting subject, but he wished to say that, in his opinion, the operation should never be performed save when death was inevitable, and always as a *dernier ressort.*

Dr. Byford, of Illinois, believed the operation was never justifiable except as a last expedient; and before deciding that the operation should be performed in a given case, we should sepa-

rate the cases in which death is really imminent from those in which it is only apparently so. For instance, it was well known that these uterine tumors were often the seat of inflammation, when it would seem that the patient's life was endangered; but inflammation was a process by which nature lessened the tumor, sometimes caused it to disappear, and was often recovered from. The danger of death from exhaustion, and especially from pressure upon the neighboring vital viscera, were among the indications which might justify the removal of the uterus.

Dr. Grant, of Canada, had listened with great pleasure to the paper and the discussion. So far as he knew, the opportunities for observations upon this subject had been extremely rare in Canada. He had known of but two cases—one followed by death, and one followed by recovery.

Dr. Mary Thomas, of Indiana, knew of one instance of recovery from removal of uterus, but thought the operation should be resorted to with great hesitation.

Dr. White, of New York, rose to thank Dr Kimball for his very able paper; very few men, however, who had had such success were as modest. In other words, the success obtained by Dr. Kimball hardly warranted the conclusion that the operation was almost never justifiable, which had been expressed by so many present. Why wait till death was inevitable and the patient was moribund? Why not give the patient the advantage of the only hope at a time when the operation promises most? He believed in going forward. The early ovariotomists were greatly opposed, and the whole world was slow in accepting, what had been demonstrated in America, that ovariotomy was a justifiable operation. The operation under consideration had a great future. He declared himself conservative but not timid. Three cases had occurred in his practice. Some weeks since he was sent for to do the operation, but the order was countermanded because the woman was supposed to be dying. The woman did not die, and he was again sent for and removed an immense fibro-cystic tumor. The woman died from shock. A year earlier the woman might have been saved by the operation. In another case the woman died from exhaustion. The third case was operated upon under an error of diagnosis. It proved to be uterine instead of ovarian, and the uterus was removed through the neck. This woman recovered.

Dr. Bozeman, of New York, read a paper entitled

KOLPOKLEISIS AS A MEANS OF TREATING VESICO-VAGINAL FISTULÆ.

Was the procedure ever necessary? The conclusions of the writer were that by a systematic and proper preparatory treatment vesico-vaginal fistulæ could always be closed by operation without ever necessitating the destruction of the vagina. The paper consisted chiefly of a correspondence between Prof. Simon,

of Heidelberg, and the writer, upon a series of cases upon which both had operated in concourse, in Heidelberg. The reader exhibited his graduated set of vaginal dilators, the systematic use of which distinguished the author's operation.

Wednesday, June 6, 1877.—Second Day.

The Section was called to order at 3 p. m. by the Chairman.

Dr. Bozeman, of New York, read some statistics in addition to his paper of yesterday. Of twenty-five cases of vesico-vaginal fistula, collected from European journals, eighteen were condemned to kolpokleisis; two died from the operation. The paper was not discussed.

Dr. Marcy, of Massachusetts, presented a paper

ON THE CONGENITAL ABSENCE OF THE UTERUS.

Several interesting instances were cited. One, aged 29, had never menstruated; had no pubic or axillary hair; externally was well formed; had no sexual instinct. There was a vagina, but every mode of examination failed to elicit the existence of the uterus. She suffered regularly from symptoms of suppressed menstruation. The woman had two sisters who had similar evidences of this imperfect development. In another case, spoken of in the paper, the woman, aged 32, had no periodic manifestation. In a third instance there was a slight uterine mass, which was threaded, as it were, by the passing sound.

Dr. Webber, of Indiana, had recently seen a woman, married for two years, who had never menstruated, and in whom he could find no signs of a uterus.

Dr. Staples, of Minnesota, had recently dissected a fully grown fœtus, whose external parts appeared those of a female. There was no vagina and no uterus; ovaries were present; no anus; the intestine ended in the bladder.

Dr. Warner, of Massachusetts, had met with an instance in which neither vagina nor uterus existed. The woman was otherwise perfectly formed.

Dr. Sims, of New York, had met with five cases; but, unlike Dr. Marcy's case, the vagina in every instance was wanting. In all instances the subjects seemed perfectly formed; and one particularly was a beautiful woman. But, in all instances, the uterus and vagina were absent. In one instance the subject was madly in love, but marriage was, of course, interdicted. In regard to the sexual instinct, the speaker said he had now been in practice forty-two years, and had never been guilty of asking a woman if she experienced the sexual desire.

Dr. Dean, of New York, spoke of the liability of error in deciding that there was no uterus. A case was detailed, that of a girl, aged 15, who had not menstruated. The vagina was imperfectly formed, but not positively wanting. The entire staff

of the Rochester hospital agreed that the uterus was absent. Subsequently an ill-defined tumor was felt above the symphysis pubis. An incision was made upward in the direction of the vagina which revealed an os and a uterus, from which drained away a quantity of restrained menstrual matter. The girl has since menstruated.

Dr. Bozeman, of New York, mentioned a case, otherwise perfectly formed, but in which the uterus and sexual instincts were wanting.

Dr. Seymour, of Troy, N. Y., mentioned a case in which the uterus was not altogether wanting, but in which the growth of the organ had been early arrested, perhaps by a severe attack of scarlatina, from which she suffered in her childhood.

She had never menstruated, and the sexual instinct and female modesty and shame were entirely wanting. It occurred to him that the uterus might be made to grow; and, with this end in view, stimulating injections were used; soon the uterus began to grow, and the woman afterwards began to menstruate. Subsequently her womanly instincts began to predominate, and rather to his detriment; for she blackened his reputation in a large section of his city, by detailing everything that had been said and done to her during her treatment. The speaker protested against its being declared indelicate to ask a woman concerning her sexual feelings, or concerning anything that could throw light upon the case under consideration. Was it more impertinent to inquire about the sexual feelings than to know about the perfectly formed external parts?

Dr. Parvin, of Indiana, had met with one case in which there was no evidence of a uterus. He spoke particularly of a class of cases in which the uterus was not absent but undeveloped. The function of menstruation was sometimes absent and sometimes vicarious. The uterine mass was often no larger than the end of the little finger. Passing the sound into its minute opening was quite "like threading the mass," as Dr. Marcy very aptly said. Such cases were important, because amenable to treatment, and the development of the uterus could sometimes be artificially completed. The speaker confirmed Dr. Sims in his views of the indelicacy of asking a woman concerning her sexual feelings. He knew not how to ask such questions. He was ignorant of the euphony with which to clothe the thought.

Dr. Battey, of Georgia, had seen four cases in which the uterus was apparently absent. In one the vagina was about an inch and a half long; no uterus was felt; the woman was barren and had never menstruated.

Dr. White, of New York, had seen ten or more such cases. One woman had previously consulted a practitioner because coitus was imperfectly executed. She was assured that the deformity could be remedied, and submitted to an operation. A hole was made, which satisfied her husband, but she was not able afterwards to hold her water, which was constantly running

away. An examination showed absence of vagina and uterus, and a large hole in her bladder. This vesical fistula the speaker closed by operation. In this case, when the finger was passed into the bladder, the ovaries could be easily felt upon both sides. In another case, the creature had been brought to him to be fitted with a truss. He found what appeared to be the labia of the vulva, and one labium contained a testicle, upon which the truss was to be fitted. In still another instance, he found the labia containing testicles—the subject being brought to him to decide whether the creature should be christened George or Georgiana.

Dr. Byford, of Illinois.—The experience of the gentleman who had spoken surprised him. He was not before aware that there were so many women in the world without a uterus. Two cases occurring under his observation were spoken of. In each there was an undeveloped uterus. In one, galvanism was tried, without result; the subject was more than thirty years old. In another case the uterus was at first about an inch and a half in length, but it subsequently suppurated and dwindled in size. In all he had seen some eight doubtful cases.

Dr. Crawford, of Illinois, mentioned in this connection the case of a child, now eighteen months old, who had menstruated every twenty-eight days for seven consecutive periods. The period was four days in duration. The amount of blood lost was nearly that lost by the adult. In all other respects she was like other infants.

Dr Reamy, of Ohio, mentioned a case in which menstruation had never occurred till the age of 21. By operation a vagina was made and the presence of the uterus was made out. He protested against the declaration going out from this body, that it was indelicate or impertinent to ask a woman concerning her sexual tastes. It was our duty to inquire concerning everything which could throw light upon the case under consideration.

Dr. Cutter, of Massachusetts was requested to exhibit the electrolytic apparatus devised by him for the

ELECTROLYSIS OF UTERINE TUMORS.

The success of the operation has been greater since he devised the new grooved electrode. These pointed electrodes are driven into the most accessible part of the mass, sometimes through the abdominal walls, at other times through the vagina or rectum. The electrodes must always be separated from each other by at least a half inch of tissue; more than this was better. The operation should always be performed under ether. The duration of the sitting varied from five to fifteen minutes.

Dr. Hildreth, of West Virginia, exhibited a new

VAGINAL SPECULUM,

which he had improvised. Its shape was like a common glass

speculum, but its walls were made of wires, which ran lengthwise, and were separated from each other by half-inch spaces. The advantage possessed by it is that the vaginal wall could be seen at any point.

THURSDAY, JUNE 7, 1877.—THIRD DAY.

The Section was called to order by the President.

Dr. Smith, of Iowa, read a paper on

HOW TO DECIDE THE BEST POSITION IN EVERY LABOR.

The reader had been early convinced, by a case of extreme lateral obliquity of the womb, that the position of the woman had much to do with the progress of labor. In every case we should carefully find out the relations of the axis of the gravid uterus to the entrance of the parturient canal, and place the woman in that position which was most favorable to the entrance of the fœtus into the pelvis.

Dr. Parker, of Massachusetts, reported a case of a

LARGE GROWTH CONNECTED WITH THE CLITORIS,

which was removed. The subject was a prostitute, aged twenty-five years. She had been insane more than three years. It was known that, at least three years ago, the tumor of the clitoris was as large as an orange. It was now much larger. Under ether, the growth was removed, without difficulty, with the écraseur. The mass weighed four and a half pounds. Its gross appearances were those of a syphilitic condyloma. Immediately, upon recovering from the effects of ether she was apparently perfectly sane, and remained so. She exclaimed to the operator: "God bless you! Why have you not done this before?" She also said she had another trouble, namely, her stomach. A fulness over the region had been often noticed. During her stay in the almshouse she had been noticed to vomit frequently. She had a morbid predilection for cabbage, which she would eat in great quantity, and immediately reject.

The patient died three days after the removal of the tumor, though from no effects of the operation.

An autopsy revealed the stomach nearly full of hay, rolled in a large circular mass, and one large ball had been recently driven through the pyloric orifice, which probably caused death.

Photographs were shown of the tumor *in situ*, and of the stomach on section, containing the hay.

Dr. White, of New York, completed the reading of his Annual Report on Obstetrics and Gynæcology, which had been presented at the morning session of the Association. The reader dwelt particularly upon the treatment of inversion of the uterus by gradual reposition. By means of the appliance devised by him, the reader

said that all inverted uteri could be replaced, no matter the length of duration of the inversion—thirty years or six months.

The paper concluded with a plea for bedside instruction in obstetrics; which system the speaker instituted in this country more than thirty years ago.

Dr. Sims, of New York contrasted the infrequent use of the forceps in labor years ago with the humane use of the instrument at this time. Some years ago, Dr. Quackenbush, then quite a young man, startled the New York State Society by saying that he had used the forceps in fifteen hundred labors. This was perhaps the beginning of the frequent use of the instrument which now prevailed in this country, but to no such degree abroad. The speaker alluded to a paper by Dr. Newman, of Denver, in which the use of short forceps was advocated in the last stage of labor. A very short forceps was exhibited which the speaker thought (erroneously) was devised by Dr. Newman to be used in the last moments of labor.

Dr. Quimby, of New Jersey, spoke against such frequent use of the forceps; it was meddlesome and dangerous midwifery. The case should be left to nature for at least six or eight hours. The forceps should only be used when nature shows signs of failing.

Dr. Fairbanks, of Michigan, remarked that no ignorant practitioner should be entrusted with the use of the instrument. Thirty years ago a practitioner would have been condemned, and called a butcher, if he had used the forceps.

Dr. Jenks, of Michigan, said it was no argument against the use of an instrument that in the hands of unqualified men it could do harm. He should be sorry if the teaching now prevailed of waiting, as was taught formerly. When the parts were ready for delivery there could be no advantage in waiting. Under these circumstances, delay in delivery was an indication for the use of the forceps.

Dr. Reamy, of Ohio, said the time had gone by for measuring the powers of nature by the watch. The intelligent practitioner should be ready to interfere at any moment and at any stage of the labor. Damage to the woman and child was caused much more often by too great delay than by the too early use of the forceps. The speaker said of the particular forceps now before the Section that it possessed many faults, which he pointed out, and concluded by saying that it was a beautiful instrument, but at the same time it was a useless thing—a mere toy.

Dr. Woodward, of Vermont, also thought the instrument in question a useless instrument, and spoke of the advantages of the Hodge forceps. He was formerly taught to use the forceps to save the child; but he also used it now to save the woman's bladder, which he did by its early use.

Dr. Battey, of Georgia, said that it had been claimed as an advantage that the forceps could be applied without the knowledge of the woman. He had more than once been guilty of

asking the question which had been so severely condemned yesterday, but he had never used the forceps clandestinely.

Dr. Byford, of Illinois, said that in his practice, when the pains failed and the head did not advance, he interfered without reference to time. He wished to defend the little instrument which had been so severely abused. The criticisms made by Dr. Reamy might apply to Dr. Newman's forceps, but the instrument now exhibited was not Newman's forceps, but Sawyer's forceps, which was a modification of Newman's, and a hundred per cent. better than the original. He had seen the instrument in actual use, and its excellence was very apparent. He had no hesitation in saying that, for the class of cases which the author had in mind, it was the best short forceps in the world.

Dr. Garrish, of Indiana, protested against such teaching going out from this body, advising such frequent use of the forceps. During a practice of twenty-five years, in but ten or twelve cases did he use the forceps. The instrument should be reserved for those cases in which nature had failed.

Dr. Sims, of New York, was especially asked to give his views on

STENOSIS UTERI.

The speaker detailed the history of the surgical treatment of the affection. Simpson was its author, who claimed that no damage resulted from the operation; but in two weeks from its introduction in New York, two cases of dangerous hemorrhage had resulted in his practice. Subsequently, when the speaker visited Edinburgh, he found that accidents did occur, even in the hands of the great master himself.

As first performed, the operation consisted in cutting through the vaginal cervix upon both sides with a metrotome. Soon after he began to do the operation, a case presented itself to his notice, of extreme retroflexion, that admitted the sound with the greatest difficulty. It occurred to the speaker to amputate the posterior lip of the cervix, which was greatly elongated, and with the knife to cut along the posterior aspect of the cervical canal. This was the origin of the operation, which was known as Emmet's operation, and which he wished to be known as Sims's. In the operation which he now performed, the knife was used, and the scissors were discarded. If the lips of the cervix were symmetrically developed, the lateral incisions were made with the knife; but if the posterior lip was elongated, the posterior incision was made. The depth of the incision varied with the size of the neck; the substance was cut nearly two-thirds through.

The speaker was particular to guard against all possibility of hemorrhage, by tamponing the cervix with cotton soaked with liq. ferri subsulphas 1 part, water two parts. The success of the operation depended upon the subsequent dilatation of the cervix. All operations would be futile unless a systematic dilatation of the cervix was carried out.

Dr. Parvin, of Indiana, reminded the Section that other matters were treated of in Prof. White's paper that merited discussion. In regard to the induction of premature labor in cases of placenta prævia, he wished to say that, in his opinion, the procedure should never be resorted to, save when the child was visible and the woman in great danger from imminent hemorrhage.

Dr. Seeley, of Illinois, exhibited

A NEW CERVICAL DILATOR.

It consisted of a silk bag outside of a rubber sack. Any shape could be made which was desired. A tube was carried into the sack to its fundus for the purpose of holding a metallic sound, by means of which the dilator was held within the cervical canal to be dilated. Another tube connected the body of the dilator with the syringe by means of which the dilator was distended. A disadvantage possessed by the Barnes' dilator was that it slipped out of the canal; in this instrument a sound secured its retention.

Dr. Sims, of New York, exhibited Fowler's pessary, which the speaker called almost a universal pessary. In principle it was like the Hodge, but was much more bulky, being a deep, cup-like shell of vulcanite.

Dr. Fitch, of Illinois, pointed out several defects possessed by the instrument, chief of which was its great bulk. Its large surface bearing upon the vagina would do injury to the part. The opening in the anterior part of the instrument, to facilitate its removal, was a fault, because through it there was danger of the soft parts prolapsing and becoming strangulated.

The Section then adjourned.

Association of American Medical Colleges.

The American College Association met in the club-room of the Palmer House, Chicago, Prof. J. B. Biddle, of Jefferson Medical College, provisional president, in the chair.

Professor Edward Curtis, of New York, offered the following resolutions:

Resolved, That the Provisional Association of American Medical Colleges do now adjourn, *sine die*.

This was put and carried. He also offered the following:

Resolved, That the American Medical College Association do now organize, under the officers of the former Provisional Association, with the constitution, by-laws, and articles of confederation adopted at the last meeting of the Provisional Association, and that colleges represented by delegates at the Provisional

Association and eligible for membership of the present association under its constitution, be now called upon, *seriatim*, for the subscribing by the delegates to the constitution, by-laws, and articles of confederation.

This resolution was unanimously carried, and the chairman then declared the new permanent organization effected. He then called on the representatives of the several medical colleges to step forward, as the names of their colleges were called. The roll thus made up was as follows:

Jefferson Medical College, J. B. Biddle.

College of Physicians and Surgeons, Medical Department of Columbia College, New York, Edward Curtis.

Medical Department of University of Louisiana, J. N. Bodine, and L. P Yandell, Jr.

Hospital and College of Medicine of Louisville, William Bailey, and Dudley S. Reynolds

Medical Department of Iowa State University, W. F. Peck, and E. F. Clapp.

Chicago Medical College, Medical Department of the Northwestern University, N. S. Davis.

Medical Department of University of Wooster, Ohio, W. J. Scott and H. J. Herrick.

Cleveland Medical College, Medical Department of Western Reserve College, Isaac N. Himes

Detroit Medical College, E. W. Jenks, Theodore A. McGraw, and L. Connor.

Starling Medical College, S. Loving.

Medical Department, University of Vermont, A. T. Woodward.

Medical Department of Vanderbilt and Nashville Universities, John H. Callender and T. A. Atchison.

Missouri Medical College, St. Louis, P. Gervais Robinson.

Dartmouth Medical College, Hanover, N. H., C. S. Dunster.

Kansas City College of Physicians and Surgeons, T. B. Lester.

Miami Medical College, of Cincinnati, Ohio, John A. Murphy.

Louisville Medical College, C. W. Kelly and E. G. Gaillard.

Department of Medicine and Surgery, of the University of Michigan, Donald Maclean.

Medical Department of the University of Louisiana, New Orleans, T. G. Richardson.

Rush Medical College, Moses Gunn.

Indiana Medical College, John A. Commingor.

Medical College of Fort Wayne, H. A. Clark.

The Women's Hospital Medical College of Chicago, Charles W. Earle.

Dr. McGraw, of Detroit, offered the following resolution:

Resolved, That each and every confederate college publish in its annual circulars and catalogues the names of all confederated and affiliated colleges, beginning with the commencements of 1878–79.

The resolution was adopted.

Dr. Curtis, of New York, offered a resolution providing for an assessment of $5 on each confederated college, for expenses already incurred, and the resolution was adopted.

The election of officers was announced to be in order, and Dr. Curtis nominated the following: For President, Dr. J. B. Biddle, of Philadelphia; for Vice President, Dr. N. S. Davis, of Chicago; and for Secretary, Dr. L. Connor, of Detroit. It was voted that Dr. Curtis cast the vote of the Association for these officers. Dr. Curtis objected that this was setting a bad precedent. The vote was reconsidered, and the ballot was taken in the usual way. The nominees were unanimously elected. Prof. Biddle said, for this mark of confidence he felt profoundly grateful. He thought the Association might congratulate itself on its proceedings, in quantity and quality. The moral power of the organization was destined to wield a mighty influence.

Dr. Davis was called on for a speech. He thanked the Association for its compliment, and said he looked forward, as did Dr. Biddle, to a very marked and general elevation of medical instruction in this country, as a result of the moral force exercised by the Association.

The Association passed a vote of thanks to the President for the ability and courtesy he had displayed as chairman, and to the committee on constitution and by-laws, Profs. Edward Curtis, T. A. Atchison, and L. P. Yandell, Jr., especially to the first-named gentleman, for their arduous and successful labors.

The Association then adjourned *sine die*.

During the session a Constitution, By-Laws, and Articles of Confederation were adopted. The last-mentioned of these are of sufficient general interest for republication.

ARTICLES OF CONFEDERATION, TO BE SUBSCRIBED AND CONFORMED TO BY ALL THE COLLEGES OF THE ASSOCIATION.

ARTICLE I. OF THE FACULTY.

The medical members of the faculty must be *regular* graduates or licentiates and practitioners of medicine, in good standing, using the word "regular" in the sense commonly understood in the medical profession.

ARTICLE II. OF TUITION.

SECTION 1.—The scheme of tuition shall provide for a yearly systematic course of instruction, covering the general topics of Anatomy, including dissections, Physiology, Chemistry, Materia Medica and Therapeutics, Obstetrics, Surgery, Pathology, and Practice of Medicine. The collegiate session, wherein this course is given, shall be understood as the "regular" session.

SEC. 2.—Said regular session shall not be less than twenty weeks in duration. This Section to go in force at and after the session of 1879–80.

SEC. 3.—Not more than one regular session, counting the regular session as one of the two courses of instruction required for graduation, shall be held in the same year.

ARTICLE III. REQUIREMENTS FOR GRADUATION.

No person, whether a graduate in medicine or not, shall be given a diploma of "Doctor of Medicine" who shall not have fulfilled the following requirements, *except* as hereinafter provided for in Article IV:

1. He must produce satisfactory evidence of good moral character, and of having attained the age of twenty-one years.

2. He must file a satisfactory certificate of having studied medicine for at least three years, under a *regular* graduate, or licentiate and practitioner of medicine, in good standing, using the word "regular" in the sense commonly understood in the medical profession; this clause to take effect at and after the Session of 1879–80. No candidate shall be eligible for final examination for graduation, unless his term of three years' study shall have been completed, or shall expire at a date not later than three months after the close of the final examinations.

3. He must file the proper official evidence that, during the above-mentioned three years, he has matriculated at some affiliated college, or colleges, for two regular sessions, and in the course of the same (except as provided in 4) has attended two full courses of instruction on the seven topics mentioned in Article II. But the *latter*, at least, of the two full courses must have been attended at the college issuing the diploma. No two consecutive courses of instruction shall be held as satisfying the above requirements, unless the time between the beginning of the first course and the end of the second is greater than fifteen months.

4. In case a college shall adopt a systematic graduated scheme of tuition, attendance on the whole of the same shall be equivalent to the requirements mentioned in 3, *provided* such scheme includes instruction in the seven topics mentioned in Article II, and requires attendance at at least two yearly regular collegiate sessions, of not less than twenty weeks' duration each.

5. The candidate must have passed a personal examination before the Faculty, on all seven of the branches of medicine mentioned in Article II.

6. He must have paid in full all college dues, including the graduation fee.

ARTICLE IV. OF HONORARY DEGREES.

An honorary degree of "Doctor in Medicine" may be granted, in number not exceeding one yearly, to distinguished physicians or scientific men of over forty years of age. But in such case

the diploma shall bear across its face the word "Honorary," in conspicuous characters, and the same word shall always be appended to the name of the recipient, in all lists of graduates.

ARTICLE V. OF FEES.

SECTION 1.—All fees shall be paid in lawful money, and no promissory notes or promises to pay shall be accepted in lieu of cash, for payment of fees.

SEC. 2.—No ticket, or other certificate of attendance upon college exercises, shall be issued to any student until the dues for the same shall have been fully paid.

SEC. 3.—The established fees for the exercises of the regular session, except the matriculation fee, graduation fee, fee for dissections, may be reduced, not more than one-half, to graduates of other affiliated colleges of less than three years' standing, and to under-graduates of the same who have already attended two full courses of the instruction of the regular session.

SEC. 4.—The same fees may be remitted altogether to a college's own alumni, to graduates of other affiliated colleges of three years' standing—the three years dating from the time of graduation and ending at the close of the regular session for which the tickets are given—to under-graduates who have already attended two full courses of the instruction of the regular session, the latter of which, at least, shall have been in the college making the remission, and to theological students, when not candidates for a diploma.

SEC. 5.—Under no circumstances whatever, other than the above, shall the Faculties, or any members of the same, grant, *upon their own authority*, any remissions or reductions of the established fees. And it is distinctly understood and agreed that the Faculties will discountenance and oppose the authorizing by governing boards, of admission of individual students upon other than the regularly established charges for their grade

SEC. 6.—Remission or reduction of fees for other exercises than those of the regular session, return to a student of any monies after payment of fees, or an appropriation of funds of the college for payment of any student's fees, or part thereof, shall be deemed violation of the provisions of this article in regard to remission or reduction of fees.

ARTICLE VI. OF RECOGNITION OF OTHER COLLEGES.

No college shall admit to the privileges accorded in Articles III and V the students or graduates of any college which, during any period of the students' or graduates' pupilage, shall have been excluded from the list of affiliated colleges recognized by the Association.

ARTICLE VII. AMENDMENTS.

Amendments to these Articles shall be proposed and adopted in the manner prescribed for amendments to the Constitution.

NOTICES OF NEW BOOKS.

Surgical Observations, with Cases and Operations. By G. Mason Warren, M.D., Surgeon to the Massachusetts General Hospital; Fellow of the American Academy of Arts and Sciences, etc. New York: William Wood & Company. 1867.

This is an octavo volume of over 600 pages, well printed, and containing a large number of very carefully executed illustrations of surgical diseases and operative procedures. The book comprises a record of nearly four hundred cases of the various forms of injury and disease coming under the observation of a surgeon of widely extended reputation and in active practice. The cases are carefully classified, explicitly and honestly reported, and will afford the student or practitioner information as precise and valuable as he can obtain from any one of the standard works on surgery. This book was issued immediately after the death of Dr. Warren, but was for some reason withdrawn and stored by the family. It is now again offered for sale. It may be ordered through A. P. Harrington, Canal street. The price is placed at $3 50, an expenditure no one will regret for so meritorious a book.

The Mortality of Surgical Operations in the upper lake States Compared with that of Other Regions. By Edmund Andrews, A.M., M.D., etc., assisted by Thomas B. Lacey, M.D., etc. Chicago: Hazlett & Reed, Printers. 1877.

Facts are the food on which science depends for a healthy growth. The authors of this work fully appreciate this principle, and have spared no labor in gathering the facts with which the volume abounds, and arranging them in such shape as to be best available. To give a fair idea of the contents of the volume it would be necessary to write a review almost as long as the

essay itself. We can only commend the volume to the careful consideration of the practical surgeon. It should be bound in a more enduring form; for, as a work of reference, it is well worth a permanent place in the library, and in its present pamphlet binding it will be difficult to preserve it in a satisfactory condition. S. L.

Cyclopædia of the Practice of Medicine. Edited by Dr. H. von Ziemssen, Professor of Clinical Medicine in Munich, Bavaria. Vol. xii.: *Diseases of the Brain and its Membranes*, by Prof. H. Nothnagel, of Jena; Prof. E. Hitzig, of Zurich; Prof. F. Obernier, of Bonn; Prof. O. Heubner, of Leipzig; and Prof. G. Huguenin, of Zurich. Translated by Henry R. Swanzy, M.D., of Dublin; Charles Emerson, of Concord; Edward H. Bradford, M.D., Elbridge G. Cutter, M.D., Robert F. Edes, M.D., James J. Putnam, M.D., Frederick G. Shattuck, M.D., and S. G. Webber, M.D., of Boston, and Louis Velder, M.D., of Elmira. Albert H. Buck, M.D., Editor of American Edition. New York: William Wood & Company, 27 Great Jones street. 1877.

This volume continues the study of Diseases of the Nervous System begun in volume xi. The first chapters are upon the subjects of Anemia, Hyperæmia, Hemorrhage, Thrombosis and Embolism of the Brain, by Nothnagel. In treating of the etiology of occlusion of the cerebral vessels, the author writes: "The source of the emboli which are carried into the cerebral arteries is to be sought in that segment of the vascular system which embraces the pulmonary veins, on the one hand, and the left side of the heart, the first part of the aorta, the carotids, and the vertebral arteries on the other. The emboli themselves are made up, as a rule, of blood clots, masses of fibrine, connective-tissue growths, or chalky concretions, swept from the place of their formation into the circulation."

Next follows a chapter upon Tumors of the Brain, by Obernier. After this comes a treatise by Prof. Heubner, upon Syphilis of the Brain and Nervous System. The importance of this subject entitles it to the most careful consideration. Especially is this remark true in its relation to the pathological anatomy and symptomatology of cerebral syphilis. Is that inference true which holds that syphilitic blood empoisonment, or the mere percolation of blood tainted with this venom through

the cerebral vessels, is sufficient to give rise to marked symptoms of cerebral syphilis? Or must there be present structural changes appreciable and describable by the post mortem investigator? These are questions whose solution is not yet perfected. The remaining chapters of the volume are given to acute and chronic Inflammations of the Brain and its Membranes. The volume contains 902 pages, and is gotten up in excellent style.

Transactions of the American Gynæcological Society—Vol. I.—for the Year 1876. Boston: Published by H. O. Houghton & Company, Cambridge—the Riverside Press. 1877.

We do not hesitate to say that this is one of the most interesting and instructive books placed upon our table during the current year. The subjects are discussed in the most practical and direct manner, and are generally of a practical character. It may be possible that the edition published may have been exhausted, but the following circular will show our readers how this misfortune may be avoided in the future.

Authors of Books, Pamphlets, Essays, Theses, etc., upon Gynecological or Obstetric subjects, in all languages, are requested to send such to the Secretary, in order to insure the insertion of their titles in the current Bibliographical Index, which will be published each year in the Transactions.

Subscriptions for *Gynecological Transactions, Vol. II.*, which will appear in September, 1877, will be received at the reduced rate of $4.00, by H. O. Houghton & Co., Riverside Press, Cambridge, Mass.

JAMES R. CHADWICK,
Secretary American Gynecological Society.

CLARENDON ST., BOSTON, May 1, 1877.

History of a Case of Recurring Sarcomatous tumor of the Orbit in a Child, extirpated for the third time, and ultimately causing the death of the patient. By Thomas Hay, M.D., of Philadelphia, Pa. Reprinted from the Report of the Fifth International Ophthalmological Congress, held in New York, September, 1876. Philadelphia: Lindsay & Blakiston. 1876.

There is nothing in this case not already familiar to any surgeon of experience, nor is there any new light thrown on the subject by the reporter. S. L.

Transactions of the Medical Association of Georgia. 1876.

Among the papers published in the Transactions of the Medical Association of Georgia, in 1876, there is one written by Prof. L. A. Dugas, of Augusta, Ga., entitled "*Remarks upon Some of the Pathological Peculiarities of the Negro Race.*" The subject is not only interesting, but quite important to the medical practitioner of the South. The author thinks that the negro is much more liable than the white to certain forms of disease, and that in other affections in which this degree of liability is the same, the effects and final results differ largely between them; and, finally, that the comparative exemption of the negro from a number of maladies is very striking.

Occupying the lower stations of society, the negro is subject to the deteriorating influences that attach to indigence and low propensities. His power of resistance to disease is, therefore, more or less defective, as a general rule. Hence it is, that here negroes do not stand exhausting or antiphlogistic medication as well as Caucasians. The affections to which negroes are more liable than Caucasians, Dr. D. finds to be pneumonia, phthisis pulmonalis, scrofula, bad teeth, worms, Asiatic cholera, tetanus, and keloids.

Among the diseases from which negroes are more or less exempt, the malarial fevers are the most prominent. The author, however, distinguishes the fevers occurring above tide-water from those of the seaboard; for while persons of both races may become acclimated to the latter, their susceptibility to the former is in direct ratio with the length of their exposure or residence in a given malarial district. In other words, those whose home is upon the plantations of the coast of Carolina and Georgia are comparatively exempt from attacks of what they call "country fever," whereas, the longer one resides in such malarial districts, the greater his liability to intermittent and remittent fever becomes; and this increases with each annual attack. All the negroes on the tide-water region are acclimated, and suffer no ill effects from their exposure, while the whites often die in the attempt to live there, or show unequivocal evidence of chronic suffering as long as they remain.

The malarial fevers of the districts above tide-water are as common among negroes as among whites, but the permanent effects are very different in the two races. The negro may suffer

annual attacks with impunity, retaining his good health during the interval. The whites, on the contrary, soon show unmistakable signs of a deep-seated injury, resulting from the continued inhalation of the morbid principles and the annual returns of fever. Neither of the races ever becomes acclimated, and the natives suffer more than new comers, as a general rule. Enlargement of the spleen, following repeated attacks of intermittent and remittent fevers, is almost never observed in the negro. The same may be said of neuralgia, and also of malarial cachexia, consequent upon enlargement of the spleen. While the poisoning of the white man becomes more or less a permanent affection, it is only transitory with the negro.

Other diseases to which the negro is less liable are scarlatina, diphtheria, cholera infantum, and especially yellow fever. Affections of the liver, hemorrhoids, and fistula in ano, are very rare among negroes. They are also singularly exempt from furuncles and various cutaneous affections. Diseases of the brain also are comparatively rare in the negro.

As we intend to publish the entire article in a future number of this Journal, we abstain from enumerating a few more affections mentioned by the author. Regarding the real cause of this different degree of susceptibility to diseases of the two great divisions of the human family represented in the Southern States, Dr. Dugas says that he is not prepared to explain it, but that it must be revealed by a more thorough investigation of the anatomy and physiology of the negro, when compared with the white, than has yet been made. The structure and functions of the skin alone would furnish a most interesting subject of research. The singular exemption of negroes from nævi materni, furuncles, and various forms of cutaneous disease common among whites, might be thus explained, while a more thorough study of the intimate structure and uses of the spleen might solve the mystery of the harmlessness of malarial poisoning to the negro, while it is so blasting to whites.

These remarks of our old friend, Dr. Dugas, are very true. As we all know by sad experience, the negro during the last eight years has been playing quite a prominent part as a political factor among us; and, though the pernicious influence which he has exercised as such is in its wane, he will, nevertheless, always remain one of the most important elements in Southern labor, and for this reason, the welfare of the negro race in our section

of country will, for many years to come, be intimately interwoven with that of the Caucasian. Ever since the institution of negro slavery became an object of political strife in the United States, volumes have been written about the nature and peculiarities of the negro race, either in favor or against it, but in most instances dictated by the particular prejudice of the author. Now, since the strife seems to be ended, it becomes the duty of the unprejudiced, sober minded man of science, to study scientifically and systematically the physical and mental organization of this race, whose lot has been cast with our own.

A number of points of difference in the organization of the negro from that of the Caucasian have been known for many years as fixed facts. Some of them are to be found in the osseous system, one of the most important criteria in the determination of species or even varieties. Equally certain may a difference be found in the glandular system of the skin, especially of the odoriferous glands in the skin of the axilla, which are much more developed in the negro than in the Caucasian. The points of difference existing in the bones of the skeleton probably bear none or very little relation to the existing difference found in various pathological conditions. It is to the difference in structure and the arrangements of the component anatomical elements of the various glandular organs of the body, and foremost of all, to the nervous system we must turn our attention, in order to explain the pathological phenomena observed and stated by Dr. Dugas.

Hoping that these remarks may direct the attention of the inquiring physician to this subject, we promise to do also our own share and report, from time to time, the results of our observations.

JOHN.

CORRESPONDENCE.

PASS CHRISTIAN, MISS,
March 26th, 1877.

My Dear Doctor:—This day has very nearly been an idle one with me. Pass Christian is undoubtedly one of the healthiest spots on earth, and certainly no place for a physician to make a fortune. It is not in my nature to remain very long enjoying the "dolce far niente." This evening, instead of reading, I suddenly

conceived the idea of writing you a few lines concerning the "therapentic value of ipecacuanha," and feel certain that you will concur with me in the high estimation which I entertain for this medicine.

I believe there are but very few medicines in the whole materia medica that are more serviceable. According to the dose in which it is administered, ipecacuanha acts, locally, as a powerful irritant; internally, as an emetic, hæmostatic, nauseant, expectorant, diaphoretic and tonic. In certain doses it is also found to act upon the bowels.

Piso, its earliest historian, wrote, in 1649, on its efficacy in the dysentery of Brazil. In 1672, a French physician named Legros brought over to his country a large supply of it. Helvetius, a little later, was lucky enough to successfully treat with the medicine several courtiers and the Dauphin himself, son of Louis XIV, for which he afterwards was decorated with titles and raised to the highest medical dignities of France. But it was only in the year 1686 that ipecacuanha became generally known throughout the Continent of Europe. Its mode of action was most carefully studied on both animals and man, and, finally, successfully used in many complaints. It has been my good fortune, within the last three years, to test this remedy in cases of hæmoptysis, chronic diarrhœa, and dysentery—in dysentery to such an extent and with such success, that I, like many others, dare call it a specific in that affection, whenever the disease has not yet reached the third or vascular coat of the intestines. It was Piso's "sacra anchora," and Baglivi's "infallible remedium" in the same complaint. When it first came out into use, its name was "Radix Anti-Dysenterica."

Permit me, first, to speak of my own case, for it is the one, among others, which I can best remember at present.

I had been suffering for years from habitual constipation, and tried everything I could think or read of to obtain a cure. My relief from the use of cathartics was of but very short duration, and my long-continued efforts in trying to find the proper remedy merely contributed to teach me that "it is not good practice to undertake the cure of obstinate constipation simply with cathartics." Besides habitual costiveness, I had, every fall, a severe attack of dysentery, which would confine me to bed for at least ten days. During that time I suffered with most intense griping in the bowels, and tenesmus. My evacuations were quite frequent,

mucous and bloody. I then decided to try ipecacuanha in my case. One grain of the dry powder put upon my tongue three times a day soon had an almost magical effect. After three or four doses the pain and tenesmus gave way, the mucous and bloody discharge became more and more scanty, and my evacuations natural. I continued the remedy for some time after my recovery, and found it to perfectly regulate my bowels by itself. Never since have I suffered in the same way.

So much for dysentery. In chronic diarrhœa, I met with the same success in the two following cases.

Case No. 1. During the spring of last year, Miss G——, æt. 16, consulted me about her health. I found her very pale, emaciated, and not sufficiently developed for her age. Menstruation had never made its appearance, and she had been for three years suffering from chronic diarrhœa. A good many remedies had been tried, but in vain. Every morning, immediately after breakfast, she always had from eight to ten, sometimes more, liquid, thin, yellowish mucous stools; no pain; no tenesmus. Her father is an oysterman, but the girl did nothing at home other than help her mother, and very little at that, in her house work. Pulv. ipecac was immediately prescribed, to be taken dry in half-grain doses three times a day and on an empty stomach. The strictest attention of course was paid to diet. In about a week she was already much improved—only had two or three stools in the morning, but more consistent and natural. The medicine was continued until the diarrhœa had entirely subsided, and I gradually lessened the dose until but one half-grain powder was taken a day. In the course of a month, she had improved to such an extent in every respect that I did not think it necessary to give her any other tonic. Some time since, menstruation made its appearance, and the girl bloomed rapidly into womanhood.

Case No. 2. Miss P——, æt. 22, was another case of the sort. She was so emaciated and pale, that she told me she thought she had consumption, besides chronic diarrhœa. Menstruation had gradually become very scanty and finally disappeared. She looked quite anæmic, and had a constant hacking cough. Almost everything she ate disagreed with her, and increased the number of evacuations. The appetite was quite morbid. The same treatment was adopted as in the preceding case, except that for some time her diet was restricted to nothing else than the Nutri-

tive Elixir prepared by my friend, Mr. I. L. Lyons. It was not long before an improvement took place in her general health. Her cough soon gave way, the appetite was less morbid, and in two months menstruation had reappeared. Her complexion gradually became as fresh and rosy as you please. As soon as I permitted her to increase her diet, her appetite became such that her mother had to watch her eating very closely. She is still "on the mend," has but one action, a healthy one, a day, instead of fifteen or twenty; and the last time I met her she had gained flesh to such an extent, that she pleasantly remarked to me, "I have a good deal to do at present, for I have to make up entire new clothes for myself."

The last case is one of hæmoptysis.

Two weeks ago I was sent for in the greatest hurry. Mrs. L——, æt. 54, had just had several severe hemorrhages. I found her looking very pale, with a soft, weak pulse, still spitting up occasionally a mouthful of frothy, deep-red blood. On inquiry, I was told that eight years ago she had had a very severe pneumonia; that since, her lungs had always given her more or less trouble; had frequent slight hemorrhages before, but she always could control them with table salt, and several doses of a solution of plumb. subacet. This time the hemorrhages had been more severe. She once vomited as much as half a basinful at a time. She was spitting up blood since the day before, and had not yet sent for me, because she thought she could, as before, stop it herself. Her condition was such at the time of my first visit, that I thought proper to lose no time in examining her lungs, and at once prescribed the following:

℞.—Tr. ergotæ, } aa ʒiss.;
" digitalis, }
Acidi sulphuric, } aa ʒj.;
" gallici, }
Aquæ, - - ℥viij. ℳ

Sig. A tablespoonful every half hour until hemorrhage ceases.

I also recommended her to keep in bed as quiet and silent as possible until my return.

During the evening her condition was improved, I left her after prescribing svapnia 1 gr. to be given at once, and recommended the above mixture to be administered only every third hour, unless threatened with a return of hemorrhage. During the middle of the night she suddenly awoke, and without any

other warning but a slight feeling of formication over the epigastrium and tingling sensation at her extremities, she threw up a cupful of blood. The mixture was again immediately resorted to, and once more checked the bleeding. Early in the morning I found her again quiet; pulse improved; had rested pretty well; taken some cold beef tea, but felt very anxious, as she knew she was going to have another hemorrhage. I prescribed 20 gtt. of the fluid extract of ergot every third hour, and recommended to use again the mixture as soon as she felt a warning of the return of her trouble.

At 11 o'clock the same morning, a messenger came running to my office, told me she had just had another severe hemorrhage, which prostrated her to such an extent that all the family thought she was "in articulo mortis." I found my patient covered with blood, deathly pale, her eyes deeply sunken, pulse very small and quick, great prostration, perfect despair. I then remembered having once read in some number of the *N. O. Medical Journal* a case, reported, I believe, by Dr. E. Lewis, in which everything had failed to control the hemorrhage, and ipecacuanha in emetic doses had been used with entire success. I lost no time, and in spite of a good deal of opposition on the part of her family, I administered 20 grs. of pulv. ipecac diluted in warm water, followed by repeated and copious draughts of warm water. In about 15 minutes emesis was induced. To the great amazement of everybody, not a trace of blood could be seen, and she vomited five or six times. I was glad to see her then get rid of a very large quantity of pure yellow bile. After the effect of the emetic was over she declared she felt much better. I examined her pulse; in less than a quarter of an hour it had very much improved. I prescribed 30 grains of chloral to be given at once per anum, and had the pleasure and gratification to soon see my patient fall into a quiet slumber. She only awoke two hours after, feeling still better and much refreshed. She has ever since continued to improve, and had no more hemorrhage. She is now out of bed, coughing up a good deal of pus, the contents of a large cavity, and taking bravely her cod-liver oil, tr. cinchon. co., milk punch, thrice daily, and the most generous diet that can be procured.

If I were not afraid of trespassing upon your patience and time (for my letter is already too long), I would venture upon a few remarks on the mode of action of emetine, which is the alkali

to which ipecacuanha owes all its physiological, therapeutic and tonic properties. But in the March number, 1875, of the *N. O. Medical Journal*, page 710, will be found a brief expose of the conclusions arrived at by Dr. Polichronie after a series of very interesting researches, made by himself in Mr. Vulpian's laboratory, concerning the action of this most valuable remedial agent.

With kindest regards and wishes for your own welfare and that of your family, I remain,

Most sincerely and respectfully,

Yours,

CHAS. L. LEROUX.

Conservative Surgery.

A Case of Compound Comminuted Fracture of Both Bones of the Leg above the ankle, with Recovery.

Reported by H. A. WEST, M.D., House Surgeon Galveston City Hospital, and read before the Galveston County Medical Society.

Mrs. Mary Brown, white, sparely formed, a native of Louisiana, admitted to Galveston City Hospital April 24th, 1877. During a severe gale which occurred on the morning of the 24th, the roof of the house in which she was living was blown in; she was struck with great violence by one of the falling timbers, producing a compound comminuted fracture of both bones of the leg in the lower third. During the excitement occasioned by the storm she was very roughly handled, being conveyed several blocks through a drenching rain upon a negro's back, with the leg dangling and unsupported. Finally a hack was procured, and, crowded in with several men, with the limb still unsupported, she was brought to the hospital, when her condition was found to be as follows.

From the combined influence of the injury, exposure and rough treatment, she was suffering profoundly from shock, the clothing was wringing wet, the skin cold and pale, the pulse small and feeble. Upon examination there was found a compound comminuted fracture of both bones of the leg above the ankle; detached fragments of bone could be distinctly felt beneath the surface. There were two wounds communicating with the fracture, situated upon the inner and outer side, about two inches

above the malleoli; the leg was swollen; there was slight oozing of blood from both wounds, especially from the one upon the outer side; there was severe subcutaneous laceration of the soft parts, with extravasation of blood, the large vessels and nerves apparently uninjured. She complained of severe pain when the limb was moved; there was also pain in the chest from a contusion in the left infra-clavicular region.

Considering the nature and extent of the injury, the age of the patient, and rough treatment she had received, it was my opinion that a primary amputation afforded the best prospect for recovery. Upon consultation, however, with Dr. C. Campbell, it was agreed to make an attempt to save the limb. The patient was accordingly laid upon a hard mattress, the leg placed in a fracture box filled with bran, a cloth saturated with a 2 per cent. solution of carbolic acid applied in immediate apposition to the leg; the box was swung by means of a rope and pulley, the patient placed upon light but nutritious diet, $\frac{1}{4}$ gr. morph. sulph. given for several nights in succession for relief of pain.

About the third day from the reception of the injury there was slight traumatic fever, manifested by a rise in temperature and increased rapidity of pulse; the limb became swollen to the knee, œdematous, and of a pale cadaveric hue. The bran in the fracture box retaining the fetid discharges, and not permitting the free application of the carbolized solution, was exchanged for a moss pillow, divided in the middle so as to afford a support upon either side; the pillow was placed in a cloth, the cloth was strengthened above and upon both sides by light splints, to which were attached the cords for suspension; the leg was suspended as before, and the carbolized dressings continued. But two or three doses of the opiate were required; after this the position of the limb afforded relief from pain. The bowels were kept gently open, and she was placed upon a tonic of mur. tinct. iron and pot. chlor. The swelling gradually subsided after the tenth day. From this time the progress towards recovery has been uninterrupted. The wounds continued to discharge until the end of the third week, when they became entirely closed.

May 24th, just one month from the reception of the injury, the plaster of Paris bandage (Bavarian method) was applied, and the patient allowed to get upon crutches.

Remarks. The question of amputation in compound comminuted fractures is one of the most difficult the surgeon is ever

called upon to decide. The fact that delay is dangerous, that a favorable result most frequently follows primary amputations, and that an injudicious attempt to save the limb results in the loss of the patient's life, materially adds to the responsibilities of the surgeon, and the importance of coming to an immediate and correct conclusion. As Erichsen truly says, "A wise conservatism is much to be applauded, but decision in determining the expediency of amputation is equally the characteristic of a good surgeon."

This case is a good illustration of the fact that apparently desperate cases sometimes recover, and that a departure from the strict letter of surgical precept is oftentimes attended by the best results.

It will prove instructive to briefly review and summarize the points in the case which induced me in the first place to advise primary amputation as the most judicious line of treatment.

1st. The patient was past the meridian of life, and having undergone the privations of poverty, insufficient food, and crowded, ill-ventilated apartments, was in an unfavorable condition to survive the numerous ills attendant upon a tedious confinement from an open suppurating wound.

2d. The violence of the injury was such as to comminute both bones in close proximity to the joint, at the same time producing the external wounds.

3d. The rough treatment to which the patient was subjected after the reception of the injury, seriously added to the existing contusion and laceration of the soft parts, as well as contributed to the increase of the sanguinolent extravasation.

This was a case where resort to primary amputation seemed to be vindicable, in the language of Mr. Percy Pott, upon every principle of humanity or chirurgic knowledge, yet the result exemplifies the before-mentioned fact, that cases apparently desperate sometimes recover, and that it is extremely difficult in surgery to lay down laws which shall be inviolable and applicable to all cases.

In the treatment of this case, there was a departure from the routine practice of closure of the external wounds. It was deemed best to allow the wounds to remain open, and thus afford a free exit for the discharges. The result proved the wisdom of this plan of treatment. The apparatus used was of the simplest possible nature, being similar in its plan of action to "Salter's swing

box for fractured leg" described in Erichsen's Surgery, page 283. It fulfilled every indication demanded in the treatment of injuries of this kind. The bones were kept in apposition, the parts at rest, the patient could without difficulty attend to the calls of nature, and the dressings frequently changed without disturbing the position of the limb. A point to be observed in the history of this case, is the very short time in which a cure has been effected. The time usually required to complete a cure in similar cases is from three to four months, whereas, in this case, in three weeks from the date of injury the external wounds are closed, in four weeks union is sufficiently firm to enable the patient to get upon crutches. To what extent this favorable result can be attributed to the rather imperfect antiseptic treatment, I will not attempt to say. Notwithstanding the brilliant results claimed for this method of treatment by its great originator, it has not yet attained a place in the list of permanent therapeutic measures, and as my experience in its use has been but limited, I am without foundation for an expression of a positive opinion upon this point.

GALVESTON, June 20th, 1877.

COLUMBUS, TEXAS, April 12th, 1877.

Prof. S. M. Bemiss, New Orleans:

Dear Sir—The persistence with which chronic intermittents sometimes resist our best directed efforts for their cure, renders it the duty of every practitioner to make known whatever plan of treatment he may have found successful. I submit the following, which has with me proven quite successful when strictly observed by the patient.

I give a mercurial cathartic when the condition of the secretions demands it, and then quinine in full doses to interrupt the next paroxysm. I then order the following.

℞.—Sulphate quinine,
Iron by hydrogen, aa gr. xc.,
Powdered myrrh,
Piperine, : - aa gr. xlv.

M. Make a mass to be divided into ninety pills.

S. One pill three times a day until *all* are taken.

In the majority of cases this would effect a cure; in some, how-

ever, it will be necessary to have the prescription refilled and continued for another month.

Respectfully, etc.,

C. WELLER.

Progressive Modern Pharmacy.

Editor N. O. Medical and Surgical Journal:

Dear Sir—All sciences have made astounding progress in the last half century, and medicine, to keep pace with these struggles of intellectual superiority, has burst forth from much prejudice and error. But I sometimes fear that this sudden refulgence may *dazzle* instead of guiding our footsteps in the pursuit of truth. Gigantic powers, when aroused, are too frequently misapplied, and the faculties with which a beneficent Providence has gifted us may *not* be exerted for the public weal—the baser parts of passions and appetites predominating. Nowhere in the wide domain of science have the baser propensities of man a more tempting and inviting field in which to gratify their "greed for gain" than in the almost exhaustless resources of *Pharmacy.* Outside of the *adulterations* of drugs, especially those that are costly and of almost daily use, we have to contend with the compounds and preparations called "*new remedies,*" made by the so-called and self-styled "*manufacturing pharmacists and chemists*" of which all our principal cities are filled. Sometimes the physician and patient are to blame; they are their own dupes, because they seek for *cheap medicines* as they would any ordinary commodity, sacrificing purity and effectiveness for mere cost. But oftener it is the unprincipled and dishonest dispenserr. By making their preparations palatable and attractive, and by advertising and sending out shrewd agents, they impose on the unsuspecting physician, who really is incapable of judging of the therapeutic value of their preparations except by trial and observation. How important then, that as physicians, we should have a critical knowledge of the various manufacturers and dealers, both for our own protection and for the information of our patrons, who always rely on their family physician for such information. And the *price* of medicine should ever be a secondary consideration when life and health are at stake. An honest dealer will never extort on his ignorant and sick patron. Equally

as important and essential is it, that we should be able to give our patients the full benefit of all newly-discovered remedies and their improved modes of administration. The physicians, no less than the afflicted, owe a debt of gratitude to modern pharmaceutical science for the discoveries in this department of our profession. My purpose in writing this series of papers on modern pharmacy is to furnish the profession this desirable information, so far as I am able, after long and patient observation and experience upon the effects of many of these new compounds—after careful and repeated use of them under various circumstances of health and disease, on different constitutions, as well as acquaintance with their manufacturers and proprietors. The country is filled with new remedies and compounds, and it is impossible to cast our eyes over such multiplied groups of medicinal preparations without being struck with the palpable absurdity of some, the disgusting nature of others, the total want of activity in many, and the uncertain and precarious reputation of most of them. Our astonishment and indignation are both excited, and we cannot be surprised that our art has been arraigned as fallacious, and derided as a composition of fraud and error. I consider a reliable druggist and pharmacist as indispensable to the success of the physician as his own ability to correctly diagnose and treat disease. We are obliged to depend on them, for we cannot compound our own prescriptions, even if we had the facilities. The various houses I allude to in these papers may be relied on with absolute confidence, as well as their preparations—for "it is a free-will offering," after a lifetime of close observation and experience behind the counter, in the laboratory, and at the bedside.

In this communication, I prefer to notice the long-established and reliable pharmaceutical and chemical house of Messrs. John Wyeth & Bro., of Philadelphia, and their preparations. The U. S. Centennial Committee on Awards, before whom appeared a long list of the leading pharmaceutical and chemical preparations of this firm, in their report concerning the awards made, were more exhaustive and complimentary than any other engaged in same line of business. This committee were emphatic in stating that in all the preparations examined by a most critical chemical analysis, they could not find an instance where *effectiveness* was sacrificed for *taste* and *appearance*, and that every preparation contained exactly what was represented on the label

and circulars, and was as agreeable as possible—more so "than the same ingredients as usually made and extemporaneously prepared." (Extract from their report.) Speaking of their combinations containing alkaloids of Peruvian bark, they say: "The absence of intense bitterness is evidently due to *quinia* being used instead of sulphate quinine, as is usually the case; consequently the addition of acid is not required to insure solution, and the bitterness of the salt is not fully developed." All intelligent physicians know the distinction between the alkaloid *quinia* and the salt *quinine*; the former, while 8 per cent. stronger than the latter, has scarcely any disagreeable bitter, and is twice as costly.

The various *Elixirs* we find in all the drug stores are almost universally worthless—a mere pleasant and agreeable *placebo*, without medicinal merit. Hear what this committee report of the elixirs manufactured by Wyeth & Bro. "Their elixirs seem to be a real advance in pharmacy; they represent the strength and virtue as stated on the label and in the circulars." Is not such a complimentary report, unsolicited, and emanating from such authority, sufficient to fix the character of any house for honesty and reliability? I quote further. "Their Saccharated Pepsin fully proved its value by testing a small sample of 30 grains, which at a temperature of 100° F. in eight hours dissolved over 400 grains coagulated albumen. It is only equalled by that made by Mr. Schafter, of Louisville, Ky. Samples of Butter of *Cacao Suppositories* were examined, and for precision in admixture of drug, regularity of size of cone, and nice skill in incorporating the various ingredients, are worthy of *special mention*. Butter of cacao alone was used." Neither time nor space will permit me to say all I wish from the report of the Centennial Committee. I will only refer to their report assaying their Compressed Pills, containing the alkaloids of Peruvian bark, which must interest the class of physicians for whose benefit I am writing these papers—those residing in the South and West, where malarial diseases "do most abound." "The *Compressed Pills* manufactured by Wyeth & Bro., of Philadelphia, appear to be of most uniform character, in size, weight and quality, and in *all instances* contain the amount represented. The important feature in the pills appears to be in their reduced size and the absence of any excipient. The five-grain pills of quinia sul. are smaller than the three-grain pills usually made in the

shops. * * * In our judgment these compressed pills are, for the above reasons, viz., small size, absence of excipient, and speedy solubility *superior to any other similar pills manufactured.*" In every instance where samples are furnished for experiments and assay, the committee reported that they contained the quantity of drugs or ingredients as stated on the labels and circulars, with trifling exceptions, which was explained as being caused by the "difficulty in separating the active agents from their combinations;" and they further stated that "all preparations assayed showed a remarkable accuracy in their combinations, and displayed a pharmaceutical skill worthy of *special mention*." Reported further, that their *Fluid Extracts* were made from the *purest* drugs and with the most approved appliances. I am sure no more could be said to establish the character and reputation of this or any other house.

I have been and shall continue to be thus careful and particular in furnishing evidence of the reliability of all firms I recommend to the confidence and esteem of the profession. I am quite thoroughly acquainted with the comparative reliability and merits of the leading manufacturing, pharmaceutical and chemical houses of the country, because I have been for many years giving this subject special attention, and closely watched the Centennial Committee on Awards in their reports on all pharmaceutical and chemical preparations, and the houses presenting them,

With the house thus well established, I can proceed to notice some of their leading and most valuable preparations, and first, a new preparation of iron—a therapeutic agent in more unusual demand in our climate than any other in the materia medica, save perhaps quinine. All physicians in the course of their practice will find patients, who from some peculiar idiosyncrasy or other constitutional peculiarity, cannot bear any preparation of iron, or will bear sometimes one form and then another, which is very annoying both to patient and doctor. From my knowledge of this preparation, I believe all this trouble is done away with. I refer to *Dialysed Iron* (Ferrum Dialysatum).

The medicinal use of iron is very ancient, but its value as a tonic, corroborant and restorative was never fully appreciated until of recent years. It is an essential constituent of the tissues of almost all animals and plants, but of special importance in the blood of the former—for a want of it is the chief cause of

anæmia or chlorosis with its long and distressing train of nervous and other disorders. The ferruginous preparations when administered, by improving the quality and increasing the number of the red corpuscles of the blood, which is its invigorating property—improve the whole organism, restore the nervous system to its natural tone; then come the vigor and elasticity of health, with the rosy tint on the cheek, in the place of the wretched depression and profound melancholy.

In this day of habits of luxury and refinement, with their enervating influences, so different from the more rugged conditions of past times in the lives of our fathers, we have, alas, an abundant material for the use of this indispensable remedial agent, which the attentive and observing physician recognizes as a striking evidence of the degeneration of our race. Under these circumstances, the administration of iron we acknowledge as our most efficient remedy. The preparations in use are in many respects objectionable. Some irritate and oppress the stomach, producing indigestion, cramps, eructations, etc. Others act unpleasantly on the bowels, causing diarrhœa and griping; while some are astringent, giving rise to constipation; and again, all blacken and injure the teeth, and are unpleasant in taste and smell. *Dialysed Iron* produces none of these disturbances. It is simply a peroxide of iron in the liquid state, free from all extraneous matters, and its effective dose is very small and can be taken without difficulty. In fact, it combines all the advantages of the best preparations of iron without any of their objectionable qualities. The dialysed iron is then a preparation of much interest, chemically, and of great value in therapeutics. In the chemistry of its process, every scientific physician must feel interested. Messrs. John Wyeth & Bro. effect on a large scale, by a simple endosmosis, the change from an acid combination to a perfectly neutral state, without impairing the solubility of the substance. Graham and others have heretofore done this on a small scale, as a matter of experiment. The advantages theoretically ascribed by chemists to the article, if it could be prepared in quantity, are borne out by practical trials since they have manufactured and offered it to the profession. The process of dialysis is of no practical use, and I will not describe it. I will only mention that the preparation is an inodorous liquid, of a deep red color, and has none of the styptic taste so common and disagreeable in ferruginous preparations. I will sum up its vir-

tues and advantages by repeating what the celebrated Becquerel says of it. "It produces neither heartburn, diarrhœa, constipation, eructations, nor, in short, any gastric disturbance, and, which is a matter of vast importance, never *blackens* or *injures* the teeth." He says further: "All these statements are borne out by numerous experiments of my own, and the observations of the best physicians in Europe, as well as the distinguished Societies, whose attention has been directed to it. Administered for months, dialysed iron has shown itself most conclusively to afford all these advantages."

I particularly call the attention of physicians and druggists to the important fact, that as an *antidote* for poisoning from *arsenic*, dialysed iron is quite as effective as the hydrated sesquioxide (hitherto the best remedy known in such cases), and has the great advantage of always being ready for immediate use. Every drug store should have it to supply such an emergency. The dose is from 40 to 60 drops, or even 80, during 24 hours, and harmless in larger doses. It comes neatly and elegantly put up in a four ounce bottle, contained in a square paper box with three compartments—one for a drop-counter, which is a small glass vial arranged so that it will drop the medicine accurately without inconvenience; the other compartments for the bottle of iron and an extra cork. Such is this new preparation of iron I have at much length and carefully described, believing it to be a ferruginous preparation of great value and strength, without odor or taste, and harmless to the teeth—combining, in short, all the advantages of the best preparations of iron without any of the objectionable qualities, and being a solution in as nearly as possible the form in which it exists in the blood, of invariable strength and purity. I will mention the case of my wife, who is very delicate, and invariably, if in this climate too late in the heated term, has a bilious attack of some kind, convalescing slowly in an anæmic condition, and only recovering her strength after visiting the chalybeate waters of North Georgia. I have never found a preparation of iron she could bear, on account of its producing unbearable gastric distress. This spring I accidentally was put in possession of a bottle of dialysed iron, which I gave her in twenty-drop doses three times daily at meal times. Strange to say, not one unpleasant symptom followed its use, although she was aware that she was taking an *iron* mixture, for which she had a holy horror. With the addition of a bottle of good

porter per day and good nourishment, she rapidly improved and recovered without having to leave home to this writing.

Dr. S. Wier Mitchell, a leading and one of the most intelligent physicians of Philadelphia, the home of this medicine, thus discourses to his class. The patient was a celebrated pedestrian, who by over-exertion in his profession, had so severely tasked his physical endurance as to be in the extreme of feebleness, with loss of voice and eyesight, etc. In the course of his clinical lecture on the rare and interesting case of this celebrated individual, the champion pedestrian of the world, who walked successfully against all the professionals of the world, Weston included—after walking one hundred and thirty-six consecutive hours, with only a rest of fifteen minutes each 24 hours—his last one occurring in December and January, 1876–'77, walking fifty miles in ten hours; and, although accomplishing this feat easier than any of the others, yet he became affected as above stated. After giving the full history of his case, the present attack, etc., Prof. Mitchell came to the treatment, remarking: "As to drugs, I shall give him *only iron*, and not the subcarbonate of the U. S. Pharmacopœia, which we usually employ, but the *dialysed iron*, a neutral solution of the peroxide, with which I have been experimenting largely of late. It is commonly given in doses of thirty or forty drops a day, which would be a small dose, as the solution contains 24 grains to the ounce. I will use it, however, as I use most iron preparations, in far larger doses, and have given it freely by the drachm or half ounce, without its causing annoyance. The preparation is certainly tolerated well by some people who do not bear other forms of iron; and as it does not blacken the teeth, or in any way affect the bowels, I have been altogether greatly pleased with it. Its freedom from unpleasant taste is also no mean advantage. The foreign forms of dialysed iron are sometimes objectionable, both on account of their price, their taste, and the uncertainty of their quality. These objections do not apply to the American specimens of the drug as it is now made, on a large scale, by John Wyeth & Bro., of this city."

Such a report concerning any remedy from so distinguished a source, establishes its value and importance beyond cavil, and I feel no hesitancy in pronouncing it *the best* and most valuable preparation of iron in use.

Wm. A. Greene, M.D.

Macon, Ga., June 12, 1877.

EDITORIAL.

Change in the Editorial Management of the Journal.

Drs. W. H. Watkins and George K. Pratt have become associated with the undersigned in the Editorial management of the Journal. The names of these gentlemen are already well known to the reading members of our profession. The former has been Secretary to the New Orleans Medical and Surgical Association since its reorganization, and is the present Chief of clinic to the Chair of Surgery in the Medical Department of the University of Louisiana; the latter is Professor of Physiology in the Charity Hospital Medical College, and also the Medical Superintendent of the Charity Hospital.

Other, and very important, changes will be announced by circulars to our readers and the profession at large, within a few days. Whilst not authorized to foreshadow the nature of these changes, I can assure the friends of the Journal that they are expected to work a great improvement in its interest and efficiency. I feel, therefore, that it is not unbecoming on my part to ask in my own behalf, and in behalf of the two competent and meritorious gentlemen who in future will share my labors, a continuation and extension of substantial support.

S. M. Bemiss.

The undersigned have become proprietors and editors of the New Orleans Medical and Surgical Journal, and inform its patrons and the medical profession that they have determined to enlarge it, and to publish it in Monthly instead of Bi-Monthly issues. Each number will contain eighty pages, and will be published on the first day of every month. Terms of Subscription Five Dollars in advance. As the present number is a double one, the new arrangement will begin on the 1st of September. Subscriptions and contributions are respectfully asked for.

S. M. Bemiss, M.D.,
W. H. Watkins, M.D.,
Geo. K. Pratt, M.D.

The Woman's Hospital Imbroglio.

Is an uncomely exhibition of weakness and moral imperfectness, even among those who occupy the highest niches our professional temple affords. In the quarrel, Drs. Peaslee, Emmet and Thomas have the great advantage which legal and carefully-taken positions afford.

Dr. Sims has been exceedingly indiscreet. All who acquaint themselves with the facts will admit the correctness of this charge. It may also be true, as quite definitely charged, that he has been egotistical, vain, and disposed to over-estimate himself. Under the influence of qualities or emotions which generally give human conduct some unfortunate aberration, he made a speech so ill-timed and extraordinary, that even his opponents apply the term insane to define his great presumption. After Dr. Sims had committed these faults, he took the only course of conduct which suggests itself to either a gentleman, or a Christian, when he has done a wrong thing. He fully and frankly confessed his error, and requested forgiveness and retention in office. The members of the Board seem to have read the best of all books to little purpose, so far as any perceptible effect upon their conduct supports such an accusation. They were implacable—not much disposed to forgive "men their trespasses," and led by the gallant "Col. Davis," who appears to us to show his partizanship from beginning to end of the controversy, came very near expelling Dr. Sims instead of allowing him to resign. We draw our conclusions respecting the merits of the respective parties to this quarrel, from a careful perusal of the two pamphlets, and not from any personal knowledge or information. Dr. Sims, from his own manly confessions, has been rash, inconsiderate and wrong; his opponents have been cool, phlegmatic, law-abiding, and deny that any wrong has been done by them.

On the one side is a human being, like ourselves, erring and unstable, but possessed of noble qualities both of the head and the heart—a man who has done as much for the profession and for humanity as any one of his opponents—perhaps as much as all of them thrown into one batch. On the other side are three clear-headed, cautious, calculating men, who base their right to cast stones upon the qualification established by the Savior while on earth. Our hearts yearn for the former, and hope for his atonement, purification and reëstablishment.

It is certainly not our purpose to accuse these gentlemen of

having done wrong to Dr. Sims. Still we do not believe that many readers will arise from a careful perusal of both pamphlets, without an unpleasant impression that the most cordially-indited phrase in reply to Dr. Sims, is that which "suggests to him a manly resignation to these consequences."

Discontented Doctors.

Our friends of the *Louisville Medical News* are not happy over the late election of President by the American Medical Association. They publish quite a list of names, from which they say a selection should have been made. The list is a capital one, and, without doubt, will be kept in view by future meetings of the Association. They say "it" (we suppose "*it*" means the *election*) "came from Philadelphia and Washington." Supposing it to be true that "it" did come from Philadelphia and Washington; is not "it" quite as likely to prove respectable and proper as if "it" came from Indianapolis and Louisville?

They refer to Blaine and Chesterfield, and then speak of certain parties being "put rudely aside to make room for a stranger." The Hon. Mr. Blaine, for aught we know, regards every person not connected with his particular ring as a "stranger;" the latter in all probability, would have been more polite, even to a "stranger." So at least some one of their personal references may have a significance other than the writers designed. The truth is, that when men young in years as compared with the President elect, and very much younger in professional standing when compared with him, call him a "stranger" to the medical public of this country, they are guilty of conduct uncalled for, and bordering so closely on the indecorous as to justify an earnest expression of disapprobation.

Athennée Louisianais.

NEW ORLEANS, LA., October, 1876.

Dear Sir:

At the meeting of the "Athénée Louisianais" of September 13th, 1876, on motion of Dr. Charles Turpin, the following Resolution was adopted:

"*Resolved*, that a Committee of Five (5) be appointed to cor-

respond with the Physicians practicing in the different Parishes of Louisiana, in order to obtain the most precise information concerning the nature of the prevailing diseases, and the number of deaths among the white inhabitants."

In order to favor immigration and otherwise contribute to the prosperity of the State, we deem it essential to invoke the aid of our experienced *confrères* of Louisiana in this our difficult task.

We hope that you will answer as soon as practicable the questions propounded below, and are confident that the information furnished by you will constitute a firm basis for valuable statistics not heretofore established.

1. What is the white population of the Parish, and their different nationalities?
2. The epidemics, their nature and frequency?
3. The prevalent diseases?
4. The mortality among the white inhabitants?
5. Special remarks.

With assurances of our highest consideration,

Dr. CHARLES TURPIN,
" SABIN MARTIN,
" JEAN DELL'ORTO,
" J. G. HAVA,
" F. B. GAUDET.
Committee.

N.B.—All letters or memoirs to be addressed to Dr. Charles Turpin, 240 Royal Street.

It is desired by this committee to send the above circular to *every* physician in Louisiana, consequently they respectfully ask that the address of every physician be forwarded to Dr. Turpin. The circular will be printed in both French and English, and a copy in each language forwarded to all gentlemen whose names and post-offices are obtained. EDITOR.

Professorial Longevity.

The following interesting item is furnished by Professor L. A. Dugas.

"In 1832 the Medical College of Georgia was organized by six Professors, four of whom are still holding Professorships, having delivered their forty-fifth course of lectures last winter. These are—

"Lewis D. Ford, M.D., LL.D, Professor of Practice;
"Joseph A. Eve, M.D., Professor of Obstetrics;
"Louis A. Dugas, M.D., LL.D., Professor of Surgery;
"Paul F. Eve, M.D., Professor of Surgery.

OBITUARY.

Dr. James M. Compton.

ROOMS SHREVEPORT MEDICAL SOCIETY,
February 2d, 1877.

Editor N. O. Medical and Surgical Journal:

Dear Sir—Enclosed please find a *clipping* from the *Shreveport Times* of the 21st ult., which I have been directed to send you with the request that you will give it a place in your Journal.

I am, Sir, very truly yours, etc.,

WM. W. ASHTON,
Corresponding Secretary.

TRIBUTE OF RESPECT.

Died in this city, December 16, 1876, of malarial hematuria, after a brief illness, Dr. JAMES M. COMPTON, aged 38 years.

At the regular meeting of the Shreveport Medical Society, held on the first Monday in January, a committee was appointed to prepare resolutions expressive of regret for the death of their brother member, Dr. James M. Compton, and also of the estimation in which he was held by this Society.

At a called meeting on the 7th January, the committee submitted the following, which was unanimously adopted:

"Dr. Compton was a native of Alabama, and a graduate of the Medical Department of the University of Louisiana. After receiving his degree, he remained for some time in the Charity Hospital in further pursuit of clinical knowledge. He afterwards returned to his home in Caddo parish, and entered regularly upon the practice of his profession. In the fall of 1874, desiring a more extended field of observation and study, he located in Shreveport. After establishing himself he embraced the earliest opportunity to unite with the regular representatives of his profession, and was accordingly elected unanimously a member of the Shreveport Medical Society, an honored place in which he held until his death. In all his professional intercourse with his brethren he evinced a high regard for the dignity and responsibility of his calling, and always commanded the confidence and respect of his fellows. He possessed an analytical mind, was fond of books, and had he lived, would have won a fine reputation in his profession.

"In his death our Society has lost an efficient member, and the profession a zealous and useful representative. But the heaviest loss has fallen upon his family. He leaves a wife and children, to whom in their sad bereavement we tender our deepest sympathies."

METEOROLOGICAL REPORT FOR NEW ORLEANS.

Table I---May.

Day of Month.	Temperature.			Mean Barometer Daily.	Relative Humidity—Daily.	Rain fall—inches
	Maximum.	Minimum.	Range.			
1	72	56.5	15.5	30.124	43	.00
2	76	58	18	30.078	51	.00
3	77	57	20	29.929	64	.00
4	77	62	15	29.745	76	.54
5	82	66	16	29.785	71	.00
6	79	66	13	29.783	83	.15
7	76	66	10	29 879	55	.00
8	74	61	13	29.975	44	.00
9	72	56	16	30 063	52	.00
10	76	61	15	30.055	62	.00
11	77	61	16	30.065	65	.00
12	77	64	13	30.005	81	.34
13	76	69	7	30.040	82	.21
14	78	70	8	30.118	76	.01
15	78	68	10	30.179	77	.—
16	79	66	13	30.123	69	.00
17	80	64	16	30.093	73	.00
18	80	66	14	30.023	64	.02
19	80	71	9	29.941	83	.20
20	83	68	15	29.931	78	.01
21	85	70	15	29.930	74	.00
22	90	72	18	29.917	62	.00
23	92	74	18	29.918	55	.00
24	85	76	9	29.947	46	.00
25	83	70	13	29.984	43	.00
26	83	69	14	30.027	41	.00
27	83	71	12	30.045	57	.—
28	83	69	14	30.079	64	.00
29	79	68.5	10.5	30.062	63	.00
30	81	68	13	29.992	70	.—
31	84	67	17	29.996	68	.00
						Total.
Mean..	79.9	66.16	13.74	29.995	64.0	1.48

Table II---June.

Day of Month.	Temperature.			Mean Barometer Daily.	Relative Humidity—Daily.	Rain fall—inches
	Maximum.	Minimum.	Range.			
1	84	70	14	30.109	70	.00
2	84	70	14	30.159	67	.00
3	85	68	17	30.138	64	.00
4	85	69	16	30.045	69	—
5	88	75	13	29.941	73	.00
6	89	74	15	29.905	69	.00
7	90	76	14	29.899	72	.00
8	88	77	11	29.937	78	.00
9	88	76	12	29 923	75	.70
10	76	67	9	30.006	59	.21
11	81	67.5	13.5	30.049	52	.00
12	84	71	13	30.050	54	.00
13	85	75	10	29.983	72	.00
14	85	76	9	29.919	86	.60
15	86	76.5	9.5	30.008	81	.04
16	85	76	9	30.070	76	.11
17	87	77	10	30.072	74	.00
18	87	75.5	11.5	30.086	77	.18
19	85	76	9	30.119	82	.41
20	87	74	13	30.132	81	.50
21	89	76	13	30.059	71	.00
22	90	76	14	29.955	69	.00
23	91	78	13	29.957	66	.00
24	91	77	14	30.002	70	.00
25	92	78	14	30.049	69	.00
26	93	78	15	30.089	73	.00
27	92	78	14	30.067	63	.00
28	92	80	12	30 060	65	.00
29	94	78	16	30.040	67	.00
30	93	79	14	30.075	63	.00
Mean..	87.5	74.8	12.7	30.030	70	Total. 2.75

Mortality in New Orleans from April 30th, 1877, to July 1st, 1877, inclusive.

Week Ending	Yellow Fever.	Malarial Fevers.	Consumption.	Small-Pox.	Pneumonia.	Total Mortality.
May 6.....	0	6	19	26	5	136
May 13.....	0	6	19	26	4	134
May 20.....	0	4	13	27	7	135
May 27.....	0	9	19	26	9	185
June 3.....	0	12	16	34	5	148
June 10.....	0	10	12	18	4	161
June 17.....	0	8	21	32	2	140
June 24.....	0	14	16	27	1	138
July 1.....	0	21	25	26	2	194
Totals.....	0	90	160	242	39	1371

NEW ORLEANS
Medical and Surgical Journal.

Circular Letter.

The undersigned inform their friends and the Medical Profession generally, that they have become the Proprietors, as well as Editors, of the NEW ORLEANS MEDICAL AND SURGICAL JOURNAL. They also announce the following changes in its publication:

1st.—It will hereafter be published as a Monthly, and issued on the first day of every month.

2d.—Each number will contain 80 pages, which is an addition of 60 pages to the Annual Volume.

3d.—There will be a change in the "make-up" of the Journal, the articles being, as a general rule, short and almost exclusively practical.

4th.—As the July number is a double one, [167 pages,] the first monthly issue will appear September 1st, and will be a continuation of volume V. [New Series], of which the July number is the beginning.

THE NEW ORLEANS MEDICAL AND SURGICAL JOURNAL affords the best reflex of Southern Medicine and Southern Medical Literature to be obtained; it has uniformly sought to advance the great interests of Medicine without bias or partisanship; we therefore call the attention of the profession to it, believing it to be fully worthy of support, both upon the grounds above stated and also upon the score of its intrinsic value to the working members—busy practitioners.

As in making the changes, referred to above, increased expenses are necessarily incurred, we confidently hope that the profession will give us such immediate and substantial support that we may be relieved from all anxiety concerning our financial outlay.

The Subscription Price of the Journal is, as heretofore, Five Dollars per annum, in advance.

Subscriptions, Advertisements, or Contributions of short practical Papers are asked for.

All communications should be addressed to the Editors, or, either one of them.

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THE

NEW ORLEANS

MEDICAL AND SURGICAL JOURNAL.

SEPT., 1877.

ORIGINAL COMMUNICATIONS.

OCCLUSION AND DILATATION OF LYMPH CHANNELS.

BY SAMUEL C. BUSEY, M.D., WASHINGTON, D. C.,

Professor of the Theory and Practice of Medicine, Medical Department of the University of Georgetown; one of the Physicians to the Children's Hospital; Physician to the Louise Home, etc., etc.

Continued from July No.

CHAPTER II—continued.

The current of the lymph is in a reverse direction to that of the blood supply. The lymphatic system receives, through its rootlets which are distributed through the tissues, the fluid transuded from the arterial capillaries, and empties it into the venous trunks near their termini. The force concerned in the locomotion of the lymph is believed, by Recklinghausen, to be mainly derived from the blood vascular system, and is estimated by him to be equal "to the difference in the amount" of the arterial and venous blood pressures—the venous being always the minimum; "so that the greater the difference, the more rapid is the movement." The lymph canalicular system having its origin in immediate relation with the capillaries conveying nutrient blood, the pressure from that source must bear a constant relation to the amount of transudation, or, perhaps, more properly, to the nutritive demands of the tissues; for as the rhythmic heart force and recoil contraction of the arteries cannot be directly

transmitted to the lymphatic system, the blood pressure force can only be communicated to the column of lymph by the passage of the plasmatic fluid into the latter system, either through vascular continuity or by endosmosis. Flint derives "the main causes of lymphatic circulation" from transudation and endosmosis, "originating at the periphery," where they are favored by the thinness of the single homogeneous wall of the lymphatic plexuses and the enormous absorbing surface. The force of transudation he compares to the force with which fluids are discharged from the ducts of secreting glands, which is independent of the motive power of the heart. These factors are practically the same, and both are essentially vis a tergo forces, for the difference in the amount of the two blood pressures is the excess of the arterial over the venous. To these must be added other factors, not less important or necessary, derived from the contraction of the walls of the lymphatic vessels; from compression of surrounding and contiguous parts; from the movements of respiration; and from the absorption of chyle. While conceding the existence and influence of these vis a tergo forces, many considerations induce me to doubt their predominance in the production of the movement of the lymph.

The anatomical construction and arrangement of the lymphatic system and its physiological function induce me to believe that forces, other than those derived from the transudation and endosmosis and from the difference between the venous and arterial blood pressure, each accessory to the others and acting in correlation, constitute the chief factors concerned in the locomotion of the lymph

The slowness of the movement of the lymph, as compared with the rapidity of the arterial and venous blood currents; the varying amount of pressure in, and absence, in a normal condition, of distention of the vessels of the lymphatic system; the entrance of the lymphatic trunks into the veins near the confluence of large branches, and where the venous blood pressure is almost inappreciable and the current is most rapid; the marked effect of active muscular movement in accelerating the flow of the lymph; and the contractility of the vascular walls, which is an appreciable factor,* are conditions which cannot be omitted

* Haller produced contraction of the absorbents of the liver by the application of sulphuric acid, and saw them propel their contents with celerity on the

from an inquiry into the nature of the forces concerned in the movement of the lymph, and which antagonize the views of Flint and Recklinghausen. But the anatomical construction and arrangement supply the most important arguments against these conclusions.

The supply of valves is very abundant, and they are always placed at shorter intervals where pressure from surrounding and contiguous parts is most effective, though not unfrequently most irregular in its operation and, consequently, where isolation of small sections of the column of fluid is most needed. These valves prevent regurgitation only so far as the super-imposed column of fluid is insufficient to impair their integrity,* or where there is no solution of the continuity of the vascular walls, and distention is within the limits of ordinary and normal extensibility. In cases of lymph-angiectasis it is not necessary, usually, to look beyond the nearest neighboring and connected glands, for the cause of such distention. Nature has wisely multiplied the number of valves in the afferent vessels the nearer they approach the glands, as well to modify and direct the flow as to prevent regurgitation; but if from any cause the passage of the lymph through the glands is obstructed or prevented, dilatation of the afferent vessels will ensue, and it is not improbable that a reflux movement of the corpuscular elements may take place. Valvular insufficiency and dilatation may exist in opposite relations to each other, either as cause or effect. Insuffi-

admission of cold air into the abdominal cavity.—Goodlad, Practical Treatise on the diseases of the vessels and glands of the absorbents, p. 10. Lond., 1840.

"They possess muscular contractility in all red-blooded animals, and it exists not only from birth, but is so tenaciously retained that it is not immediately destroyed by death. They contract, too, with considerable force, for they have been frequently ruptured by their own action; and though they are dilated and form varices, it most probably arises from paralysis of the muscular or rupture of a small portion of their internal coat."—Goodlad, loc. cit., pp. 10, 11.

* The conclusion which Colin deduced from his experiments, that the coloration of the chyle in the thoracic duct was derived from red blood corpuscles coming from the subclavian vein, and the demonstration—by Dalton—that the chyle first discharged through a fistula established in the duct is white, and gradually assumes a rosy tint, manifestly point to the fact that, under certain circumstances, there is a regurgitant current in the thoracic duct, indicating, of course, a loss of valvular integrity, which may, in a measure, be due to the solution of continuity of the walls of the duct, and consequently, loss of the equable pressure upon the fluid contents.

ciency, which may result from congenital defect or from disease primarily attacking the valves, would produce stasis of the fluid flowing in the vessels, the accumulated fluid would produce distention of the walls of the vessels, and the coats losing their normal contractility, permanent dilatation would ensue.* Insufficiency resulting from vascular distention would be a mechanical process. The dilatation of a vessel may result from a thinning or loss of contractility of its walls, from increased resistance to the onward movement of the fluid, and perhaps, also, from the lesser extensibility† of the intima than of the adventitia. In any intervalvular section of a vessel thus dilated, the lateral pressure of the accumulated fluid would constantly increase until the unaltered valve immediately behind would prove insufficient to maintain the weight, or its semilunar segments might be forcibly separated by the increased calibre of the varicose vessel. Lymphatic varices usually have their beginning in the vessels and extend to the plexuses, but the plexuses may be alone affected. Varicosities always progress backwards from the point of arrest of the flow of the contained fluid, and may result from simple repletion of each proximal intervalvular section, without any valvular insufficiency. This mode of producing lymphatic ectasis is well illustrated in Beau's‡ cases of varicose dilatation of the lymphatic vessels of the prepuce, in which the integrity of the valves was preserved.

"In order," says Beau, "to obtain a good view of the lymphatic varicosity, the folds of the prepuce must be obliterated by the drawing down and tension of the skin of the penis. Then it appears in the form of a little rounded cord, resistant and hard to the finger, in which has accumulated a limpid, aqueous liquid, which cannot be expelled through either of its extremities. The varicose vessel being confounded with the folds of the prepuce, and directed, like them from behind forwards and from above downwards, there is a dorsal extremity situated near the median line, and a frænal extremity, bordering upon the frænum of the prepuce. This cord presents, in its continuity, intersections

* Philippe-Aime David—Thèse pour Le Doctorat en Medècine, p. 33. Paris, 1865.

† Cruikshank, after a series of comparative experiments, found the internal to be much less extensible than the external coats.

‡ Revue Medico-Chirurgical de Paris, p. 22, vol. 9th. Paris, 1857.

which mark the presence of lymphatic valves. As a proof, if with a fine needle, a slight puncture is made in the dilated cord towards its frænal extremity, only that portion is emptied which is situated between the puncture and intersection, but if the puncture is made in the dorsal extremity, the cord is emptied in its whole extent."

The course of the lymph is towards the dorsal extremity, in which direction the valves open, and the failure to discharge the fluid except by puncture at the dorsal extremity establishes the competency of the valves. Meckel* says, "the hydatids of the lymphatic vessels seem many times to proceed from a dilatation of these vessels, closed at both ends by valvules; rendered more probable again by those cases in which have been found hydatids filled with water, in direct communication with lymphatic vessels."

The widening of the vessels immediately above the valves, sometimes even into saccular dilatations, which gives to the vessel when distended a moniliform appearance, may be a provision of nature to accommodate moderate accumulations of fluid in the intervalvular segments, thus preventing injury to the vascular walls, and providing for the ordinary irregularities in the volume of fluid, and for the intermittent operation of the forces concerned in the locomotion of the lymph. It is, probably, this condition exaggerated, in consequence of some obstruction to the onward flow of the lymph, which Meckel denominates hydatids of lymphatic vessels.

A somewhat similar condition, representing dilatation, occlusion and valvular insufficiency, with fistulous orifices at each terminus of the telangiectasis, through which the fluid could be discharged simultaneously, is exhibited in the following case of lymphatic varices of the penis, occurring in a man 30 years old, who entered the service of M. Ricord, Nov. 25th, 1854, reported by Dufour.†

Case‡ 51. "A year previously he contracted a urethritis, the

* Handbuch de Patholog. Anat., vol. ii., p. 260. Leipzig, 1812.

† Bull. Soc. Anatomique, p. 5, Tom. xxix.

‡ Resume by Binet (Echo Med., t. iii., p. 78), who saw, in 1858, at the consultation de la charité, "a similar case in a man 30 years of age, who complained of pain and inconvenience during coitus, in which he indulged to excess."—Loc. cit., p. 79.

acute period of which was complicated with lymphangitis of the prepuce and considerable œdema; resolution took place rapidly, but there remained on the inferior surface of the penis, little nodosities near the raphé. On the left side a reddish nipple-like pimple was to be seen, terminating at its summit by a grayish point alternately open and closed; a stylet could penetrate it. From this there passed a subcutaneous knotted cord, of the size of a crow's quill, parallel to the median raphé of the penis; the skin was not adherent, and had not changed its color. At its posterior extremity the cord terminated in a nodosity, adherent to the skin, and on which existed two grayish openings resembling the one before described; pressure being made upon the knotted cord, a sero-purulent fluid escaped from all the openings; a stylet introduced into one opening penetrated the cord and passed out through an opening at the other extremity. Between the openings described, there existed another in the middle of the cord, at which point the cord adhered to the subcutaneous cellular tissue, which M. Ricord thought was the point of anastomosis of the affected with the healthy lymphatics."

The valves, though incompetent, were present, and by their incomplete operation preserved to the dilated vessel the characteristic knotted condition. When entirely absent, either through congenital defect or destroyed by disease, such portion of a vessel will expand uniformly, presenting no intersections marked by constrictions, or, it may be this latter condition, arising in like manner as the hydatid or bladder-like, or the rosary-like form of dilatation, is simply an advanced stage of the same process, marked by very great thinning and transparency of the vascular walls. This form of ectasis is exhibited in the following case, reported by M. Huguier.

Case 52. Dilatation of the lymphatic vessels of the penis.* "A man, aged 39 years, had been affected with a right inguinal hernia, and for two years had used a bandage. On the penis, at the base of the glands, was a crown of transparent vessels, hard, tortuous, and 3 or 4 millimetres in diameter. These vessels seemed to arise about the frænum of the prepuce, from whence

* Bull. de la Soc. de Chir. de Paris, vol xii., p. 592. 1852.

could be seen each dividing into three or four branches, a little smaller, but quite as hard and tortuous, coursing towards the root of the penis and dipping into the fibrous tissue of the envelope of that organ." Through a puncture "a dull, almost colorless, fluid" escaped, followed by collapse of the vessels.

And yet more interesting is the case of dilatation of the lymph vessels of the penis, caused by stasis of lymph, reported by Friedreich,* which exhibits both the rosary-like form and equable expansion of the vessels.

Case 53. "K. K., journeyman cabinet-maker, aged 18, was admitted into the syphilitic division of the Julius Hospital, Aug. 15th. He had a simple, non-indurated chancre, about the size of a silver half dollar, upon the external skin of the penis, upon the lower side. It cicatrized after a short time, and left no appreciable puckering of the skin. When nearly healed, the lymphatic glands of both inguinal regions began to swell and to pain, followed by turgescence and a painless swelling of the whole penis. Simultaneously was observed a vessel surrounding the corona glandis like a ring, having its beginning both sides of the frænum, running thence upwards in the furrow behind the corona, and continued above in a somewhat thicker, second vessel, which extended along the median line to the root of the penis, but receded gradually inwards, escaping more and more from view, and finally could only be discovered by the touch. These vessels were very prominent above the surface, felt full, elastic, painless, and were recognized as largely dilated lymph-vessels by their whey-like, dull white contents, as well as by their rosary-like arrangement. From the circular vessels radiated numerous thinner vessels, of the calibre of knitting-needles, which carried the same contents, but, being dilated equally, did not present the same rosary-like arrangement, and which, receding after a short course upon the glans into the deeper tissues, soon escaped from view, so that no anastomoses could be observed. The inguinal glands were incised as soon as fluctuation was felt, and a considerable quantity of pus was discharged from the cellular tissue surrounding the glands, the infiltrated lymphatic glands protruding at the bottom of the opened abscess in

* Verhandlungender Physicalish-Medicinischen Gesaellschaft, vol. ii., p, 319. Erlangen, 1852.

the form of nodular tumors varying in size from a filbert to a walnut, and of flesh-red color. The wounds closed in a relatively short time, the glandular tumors were resorbed, and *pari passu* the dilated lymph vessels were reduced to their normal lumen."

It is obvious that the lymph stasis resulted from the impermeability of the inguinal glands, occasioned by the compression of the inflamed and surrounding cellular tissue. The concurrent glandular tumefaction and vascular dilatation, and their gradual subsidence, with the restoration of the channels through the glands, directly connect the two conditions as cause and effect. The varying form of the ectasia, which was equable in the smaller, and irregular and bead-like in those of the next order, leaves but little doubt of the absence of valves from the former and of their presence in the latter; and the gradual contraction of the vascular walls with the removal of the accumulated fluid, and the maintenance of their normal conditions, suggests, also, the restoration of the valves to their proper action, if, indeed, they were rendered incompetent during the continuance of the lymph stasis.

The patient of Zambaco (see case 55, *Amer. Jour. Obstetrics*) had always "carried on the posterior portion of the raphé of the scrotum two little prominences, of soft consistency, variable size, globular and transparent," which ruptured spontaneously and discharged an "opaline, whitish, milky fluid." Subsequently, two vesicles formed at the root of the penis and ruptured, discharging a similar fluid. The prominences and vesicles were arranged along an antero-posterior line—a projecting, irregular, knotted cord, at points more distinct than at others, and from all the fistulæ there was a continuous discharge. Pressure from behind forwards increased the discharge. In this case there does not seem to have been any incompetency, but immobility of the valves, which impeded the current of the lymph, and produced the dilatation of the vessel and rupture at the points where the fluid accumulated in excess.

M. Verneuil* has seen at the base of the glans penis an enormous dilatation of the lymph vessels, which presented the appearance of successive tumors in the form of a rosary. Others have observed similar dilatations in other regions of the body—

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* Bull. de la Soc. Anat., t. xxvii., p. 250.

Broca and Nelaton about the elbow, and Richet below the groin, but Beau alone has made the observation of dilatation of the intervalvular segments of a vessel, connected with perfect integrity of the valves situated in the dilated portion of the vessel. This form of varices, he states, appears suddenly, after a severe bruising of the penis, such as may take place during coitus. After the first appearance they disappear in a few days, to reappear after each coitus, and sometimes after prolonged nocturnal erections. He ascribes their formation to the obstructed lymphatic circulation caused by erection. Binet attributes them to excessive functional activity. Their sudden appearance and spontaneous subsidence clearly indicate a temporary obstruction to the lymph current, and the condition of the vessel seems merely to have been one of repletion and distention, without permanent alteration of the vascular walls.*

Every intervalvular section of a vessel contains a column of fluid sustained by the valve behind, and it is inferred that the valves subserve the purpose of removing the pressure of the super-imposed fluid from the vis a tergo, thereby enhancing its propulsive power. If this be true, the multiplication of valves would accelerate the current of the lymph, and as the arteries and venæ cavæ† are without valves, the current of the lymph would be more rapid than that of either the arterial or venous blood. The entire absence of valves from the arteries, through which the blood is driven by the rhythmic force of the left ventricle and the recoil movement of their walls, certainly antagonizes the assumption that valves contribute to, enhance, or promote a vis a tergo force.

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* These cases have been introduced here simply to illustrate the function of the valves. The formation of varices will be fully discussed in the Amer. Jour. Obstetrics.

† With few exceptions the veins of the large cavities are not provided with valves. The venæ innominatæ and venæ cavæ are without valves, and usually none are found in the branches of the inferior cava until the crural vein is reached. The subclavian veins on the cardiac side of the entrance of the internal jugulars are without valves, but the openings of the jugulars are provided with strong valves.

Monro thought with Haller, that the number of valves was regulated by the contiguity of the vessel to arteries or muscles, and that these by pressing upon, or giving a vibration to it, rendered valves unnecessary.—Monro, De venis lymphaticis valvuloris, etc., pp. 37, 39.

In the amphibia* the lymphatics are lacunæ, which when filled, become sacs without any definite form, communicating with each other through microscopic openings in their septa. They are bounded by the fasciæ and such layers of connective tissue as are found on the surface of different organs. These boundaries are without any muscular element, and the cavities of the lacunæ are without valves. The movement of the lymph is effected by lymph hearts composed of muscular laminæ, and possessing rhythmical action—one propels the lymph into the sciatic and another pumps it into a branch of the jugular vein. Hence it would seem, reasoning from analogy, that the function and utility of the muscular tunic of the lymphatic vessels in mammals is demonstrated, in so much as the absence of any muscular element in the lymph lacunæ of the amphibia is compensated by the propelling power of the lymph hearts; and as these lymph hearts act rhythmically, the further inference seems admissible that the valves, so numerous in the larger and medium-sized lymphatic vessels of mammals, supply the absence of regular muscular contraction of their walls. This inferred function of the valves derives confirmation from a consideration of the influence, upon the movement of the lymph, of the pressure of neighboring parts upon the lymphatic vessels, which cannot be a rhythmic action, but must vary with and depend somewhat upon the irregular movements of the voluntary muscles, the peristalsis of the intestines, contraction of the abdominal muscles and respiration.†

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* Recklinghausen, loc. cit., p. 216.

In reptiles and in the amphibia no lymphatic glands are found; in reptiles the valves are either imperfect or are only found in the larger vessels, and communication exists with the veins in the lower limbs. In fishes no valves are found except at the entrance of the lymphatics into the veins, which are very frequent. In all these cases lymph hearts are found, which are contractile sacs.—Marshall, loc. cit., p. 630, 1868.

† Bohlius insists that the valves of the lymphatics serve the same purpose as the ileo-cæcal valve—to prevent regurgitation.—Via Lactea corporis humani, Haller Disputatio Anatomicarum Selectarum, vol. i., p. 677.

The numerous valves distributed throughout the entire thoracic duct are for the purpose of dilatation or contraction. If the duct be carefully inflated, at intervals will be observed certain points of resistance which appear greater at the beginning, smaller towards the termination of the duct. It is therefore to be concluded that these valves have different powers of resistance, and that this power diminishes in proportion as the mass of the chyle and its force (vis.) is lessened. The semilunar valves close the termination of the duct at its entrance into the subclavian vein. The use of the valve is not merely to prevent the

Intermediate between the arterial and lymphatic capillaries lies the terminal plasmatic circulation, by which the nutritive plasma from the blood traverses the tissues, and the lymph, containing the excrementitial products of the tissues, and that part of the blood plasma not employed in nutrition, is conveyed into the lymphatic capillaries. Recent investigations have, perhaps, established the direct continuity of the lymphatic capillaries with the plasmatic system of serous lacunæ, canaliculi, and canals, but the relation of the latter with the arterial capillaries has not yet been definitely determined. Flint, Küss, and others insist that this intermediate circulation consists essentially in simple endosmosis or exosmosis, while Recklinghausen (loc. cit., p. 232) "considers it very possible that the serous canals may stand in the same open continuity with the blood-vessels as with the lymphatics." In either case, as the blood capillaries become filled with each ventricular systole, the amount of fluid either transuded or conveyed along the intermediate channels must bear some relation to the pressure of blood in the capillaries. This pressure Küss* estimates at from $^{10}|_{100}$ to $^{12}|_{100}$ of the atmosphere,

entrance of blood into the duct, since this is performed by the resistance of the chyle itself and the valves of the duct. These valves serve the same purpose as the valves in the veins.—Narcissus de generatione et Receptaculis Chyli, ibid, p. 786.

The use of the valves of the thoracic duct is the same as in the veins; the semilunar valves at the termination of the duct prevent the reflux of the chyle.—Haller de ductu thoracico, ibid, p. 799.

Wedel denies that the valves at the termination of the thoracic duct in the subclavian vein merely prevent the blood flowing into the duct, for the reasons: 1st. The thoracic duct is so constructed that the blood current could not enter it from the subclavian vein, even if the valves were absent, for in the duct itself there are a sufficient number of valves, that thus direct the current of the fluid upwards, and it cannot take a contrary course. The genuine use of the valves is to prevent the to and fro motion of the fluid in the canal, and to direct its course in a particular way. 2d. The constant repletion of the thoracic duct with lymph or chyle prevents the entrance of any other fluid into it; moreover, the constant flowing in of the lymph into the duct prevents the blood of the vein from entering it, or if it should enter, it would be immediately poured out. He concludes that the valves direct the current in a normal course.—Ibid, p. 805 et seq.

"There are two conditions in which the valves are effective in preventing the regurgitation of the blood: 1st. In straining, coughing, or other violent effort, the blood of the jugular and subclavian veins is prevented from passing into the heart, and the motion of the chyle becomes retrograde. 2d. When the duct is insufficiently filled, because of the cessation of absorption."—Cruikshank, loc. cit,, p. 174.

* New Manual of Physiology, p. 143.

whereas it is at the ventricular summit, that is, in the aorta ¼ of the atmosphere, and at the auricular summit, or in the vena cava 0.

The propulsive power of the heart diminishes with increase of distance, due to increased friction, increasing resistance from flexures, bending and anastomoses, but chiefly from increased carrying capacity of the vascular subdivisions. Hence, as the current of the lymph is in reverse relation to the capacity of the vessels, flowing, as does the venous blood, from subdivisions into trunks of diminished comparative calibre, the velocity of the current of lymph should be faster in the trunks than in the subdivisions. Such is the fact, though farther removed from the ventricle and peripheric plasmatic circulation, and yet it is much slower in the thoracic duct than the blood current in the venæ cavæ, which are not supplied with valves. The circulation of the blood in the venous system is in a measure due to the heart force, but that force is least where the current is most rapid—in the venæ cavæ. The conclusion is inevitable, that the increased rapidity of the venous blood current as it approaches the heart must be derived from some other source than the systolic movement of the left ventricle; and it is equally manifest that the velocity of the venous blood in the terminal trunks is, in some measure, transmitted to the column of the lymph and chyle flowing from the thoracic duct into the blood channel, though it does not follow, because of this anatomical connection of the two vascular systems, that the current of the two fluids must be equal in velocity—the more rapid contributes to the velocity of the slower.*

The chief function of the right auricle is, says Küss (loc. cit., p. 133), to facilitate the flow of the venous blood, by allowing itself to be filled, thereby diminishing the pressure of the blood in the afferent veins. During its contraction, reflux is prevented by the fulness of the veins and by the elasticity of the ventricu-

* "Haller, says Cruikshank, attributed much of the motion of the chyle to the pulsation of the aorta, and maintained that the reason for the termination of the duct in the left subclavian vein is that the fluid may receive a stronger momentum from the dilated arch of the aorta. This he thinks is confirmed by the fact that in cases of transposition of the viscera, the duct still lies under the arch and is inserted in the right subclavian vein. Cruikshank thinks the entrance into the left subclavian vein is to avoid resistance from stagnation, or even retrograde motion, of the blood in the cava superior and its great branches, that take place in contraction of the right auricle."—Loc. cit., p. 173.

lar walls, but if this elasticity is diminished by disease of the muscle, reflux will take place. By its contraction the blood is forced into the ventricle, and the auricle in repose allows the blood to flow in from the venous system; hence, whatever conditions of the organ interrupt this alternating process of emptying and refilling of the right auricle necessarily retards the current of blood in the great veins. These conditions also affect the current of the contents of the thoracic duct; hence, to study the relation of the heart movements to the movement of the chyle, it becomes necessary to introduce a group of cases which exhibit, under very varying conditions, the influence of the current of blood in the great veins near the heart upon the movement of the lymph and chyle.

*Case** 54. "Sooboda Anna, aged 43, had been habituated since infancy to the use of beer; had been healthy up to her 31st year. In 1874 she passed through an attack of pneumonia, and fell ill in the year following with symptoms of palpitation of the heart and shortness of breath, her feet and abdomen became swollen, and she was treated for nine months. Since that time she was healthy, with the exception of palpitation upon exertion and an occasional hæmoptysis (probably hæmorrhagic infarction). It is said, however, that in the course of the last ten years the feet, and sometimes also the abdomen, and even the upper extremities had become swollen; this is said to have been accompanied by fever."

"In November, 1859, she entered the hospital again on account of dropsy. At this time she presented the following condition: Body tall, weakly, the dirty-sallow, pale skin everywhere, especially about the neck and abdomen, traversed by numerous full, wide veins; subcutaneous connective tissue devoid of fat, muscular tissue thin and flaccid. In the face, especially upon the cheeks and nose, numerous phlebectasiæ, forming a dense bluish network. Lips and visible mucous membranes bluish; neck thin with the exception of the enlarged thyroid gland; veins of neck largely dilated, and at times pulsating; thorax flat, narrow, its respiratory movements short. Impulse of the heart indistinct in the 5th intercostal space. Diastolic vibration felt over a space the size of the head, and corresponding to the position of the

* Lymphangiectasis, V. Petters, Vieteljahschrift für die Practische Heilkunde, vol. xiv., p. 141. 1861.

heart; dullness extending from the 3d to the 6th rib, and from the right edges of the sternum to beyond the line of the left nipple. Percussion sound over the rest of the thorax clear and full. Auscultation proved vesicular breathing everywhere; and in the heart, particularly distinct toward the apex, a weak systolic and loud, sometimes hissing diastolic sound, the latter loud over the right heart as well, and heard into the aorta, whilst the second sound of the pulmonary arteries seemed moderately increased. Pulse unusually small, and, like the respiration, quickened. Abdomen tensely distended, dullness and fluctuation in its lower portion. Region of liver prominent, dullness extending from the upper edge of the 7th rib to below the navel; the blunt, thick lower edge of the liver could plainly be traced into the left hypochondriac region. Surface of liver very sensitive, coarsely nodulated; an uneven, hard protuberance, as large as a hen's egg, felt towards the left lobe. Spleen large, and reaching to the arch of the ribs. Lower extremities slightly œdematous, cold and cyanotic. Urine scanty, dark yellow, without albumen. Slight mucous expectoration." * * *

"The condition of the patient remained passable, with the exception of constant, more or less violent, pain in the region of the liver, and did not essentially change for a long period. In the month of November vomiting of bilious masses supervened, which was repeated for several days."

"The exhalation showed a distinct acetic smell; appetite began to be lost; the scant urine deposited uric acid salts; added to this was violent pain in the abdomen, whilst the œdema of the lower extremities and ascites increased rapidly, so that on account of extreme, painful distention of the abdominal walls and impeded respiration, paracentesis abdominis was performed on December 3d. About 20 pounds of clear, wine-yellow serum, poor in albumen, and containing a little sugar and biliverdin, were drawn off, after which the patient felt relieved, and the large, distinctly granulated liver could be felt; the tumor imbedded in the vicinity of the left lobe seemed to have become a little smaller. The œdema of the lower extremities remained about the same, and the ascites commenced to increase after a few days. About the middle of December the patient, ordinarily suffering from constipation, had several fluid stools. At the same time I discovered a previously not observed tumor, of the size of a small apple, in the region of the right inguinal ring.

This tumor, of which the patient did not know much, resembled a hernia, and felt like a conglomeration of ascarides-like rebounding cords, which upon pressure with the finger became somewhat softer and more flaccid. I looked upon this anomaly as a venous plexus, which might possibly answer to the protruded mesentery, to which opinion I was led by the existing pronounced hepatic schirrhosis and the varices, existing in the neighborhood of the tumor, extending to the right labium. Diarrhœa soon ceased; the amount of urine passed daily seldom exceeded a pound—the urine generally contained a brick-dust uric acid deposit, and at times vomiting and diarrhœa appeared. In the first days of January, 1861, a sudden and copious diarrhœa made its appearance (the urine always free from albumen), and the œdema of the lower extremities began to subside, whilst the accumulation of the fluid within the abdominal cavity remained the same. But 10 days afterwards the discharge of urine decreased again, the urine showed again a sediment, and ascites increased so rapidly that paracentesis was repeated on January 26th. At this time 30 pounds of strongly albuminous, dark-wine colored, fluid was drawn off, spec. grav. 1.014, and containing a small quantity of sugar and bile, with exudation cells. After paracentesis, the surface of the liver appeared finely granulated; the former tumor could not be felt. No relief, but severe abdominal pain; no appetite; exhalation of acetone, dark, scanty; acid urine full of sediments, and 5 days after acid eructations, bilious vomiting, jaundiced color of the skin, rapid increase of ascites. On February 15th the urine became alkaline, patient felt languid, and complained of severe abdominal pain. Collapse under repeated vomiting on the 19th, and death on the 20th of February after a short coma."

"Autopsy 27 hours after death: Skin pale, icteric, thin, flaccid, the subcutaneous connective tissue strongly infiltrated with serum at the depending parts and upon the lower extremities; the short thorax flattened on the right side; arches of ribs turned up, abdomen distended, fluctuating. Cranium small, great amount of diploë, sulci deep, inner plate perforated in the line of the sagittal suture. In the superior sinus loosely coagulated blood, the inner cerebral membranes infiltrated with serum, opaque upon their convex surface and thickened; vessels slightly tortuous, containing little blood. Sulci wide, gyri narrow, substance of brain tough, upon pressure after incision discharging

thin, pale blood. Lateral ventricles dilated to about twice their size, containing serum, walls strong. A large quantity of thin and loosely coagulated blood in the sinus at the base. Dark red spots upon the anterior parietal peritoneum, feeling finely granular; peritoneum covering large intestine of a blue-gray color with dark red spots, and filled with numerous cysts, from the size of peas to that of filberts, some of them colored bright red, resembling raspberries, and containing serum. Upon the small intestine numerous lenticular protuberances, distinctly reflecting upon their surface, transparent and filled with wine-yellow fluid. Mesentery containing a few small lumps of fat, and attached to the anterior wall of the epigastrium and to the lower side of the liver, the latter protruding to the width of three fingers beyond the arch of the ribs. A large quantity of thick blood in the jugulars. Diaphragm on the right side upon a level with the 7th, upon the left side with the 6th costal cartilage. Several pounds of clear fluid in the thorax. Heart occupying the entire anterior thoracic cavity. A pound of clear serum in the pericardium. The enormous enlargement of the heart includes the entire right side of the organ, so that the left ventricle with the auricle forms only an appendix. Muscular tissue of the left ventricle, which would not contain a hen's egg, thin and flaccid. The left venous orifice, by the growing together of the apices of the bicuspid valves, is changed into a small crescentic opening barely admitting the point of the little finger. The latter callous, and enclosing here and there a small bony plate."

"Endocardium of auricle pale yellow and slightly thickened. Right ventricle largely dilated, its walls scarcely a line in thickness. Columnæ carneæ of both ventricles very slender, and in spots changed to tendinous threads. Intima of pulmonary artery lemon yellow. Right auricle as large as a small child's head, its walls here and there between the muscles formed of the thin layer of pericardium. Apertures of the coronary vein gaping finger-wide. Intima of aorta only slightly spotted yellowish white in the arch. Aortic valves meet. Right venous orifice slightly contracted, right auricle studded with fibrin and filled with coagula. Thyroid gland enlarged in both lobes by colloid cysts. Tonsils slightly swollen, mucous membrane of larynx and pharynx also somewhat swollen. Left lung three-lobed, its parenchyma very dense, firm, dry at the anterior edges, bloody foam on posterior incision, and filled with serum. Section of

lower lobe dry, color elsewhere rusty brown; right lung similar. Spleen 7′ inches high and 4 inches wide; capsule thickened throughout, parenchyma hard, granular upon fracture, contains several yellowish spots as large as filberts. Liver rather large, edges blunt, the organ pushed towards the median line; capsule thickened by coarsely net-like, callous pseudo-membranes, and granular; parenchyma of liver upon section finely granular, yellowish brown and dark reddish-grey. Fluid blood in the large branches of the vena portæ. Ductus choledochus pervious. The stomach contains ingesta mixed with mucous, the mamellated mucous membrane pale grey. In the small intestines masses of chyle tinged with bile and mixed with mucous; mucous membrane dark brownish-red, firm. In the large intestines fluid fæces; mucous membrane dark greyish-red. Kidneys hard, friable, hyperæmic. In the bladder a few drachms of turbid urine; ovaries walnut-size, with uneven surface."

"The glands of the right inguinal region transformed into cysts, of small walnut-size, filled with wine-yellow fluid. From the inner wall of these cysts, containing thickened glandular stroma, trabecular projections extend into the cavity, from which it is possible to enter two dilated lymph-vessels, of crow-quill size, which connect the cysts with one another, so that a dilated vas efferens and afferens can be seen in each cyst. Upon puncture a yellowish fluid spouts from these cysts in a jet of several inches. Lymph-vessels and cysts together form a conglomeration which it is difficult to unravel. The lymph-vessels in the vicinity and the thoracic duct show a considerable dilatation—the latter had attained the size of a goose-quill."

The autopsy discloses a stenosis of the left venous orifice and a moderate contraction of the right auriculo-ventricular opening. Petters concludes that the stasis of lymph, followed by great dilatation of the lymph-vessels and glands, was occasioned by the organic heart affection. It cannot be doubted that the interruption of the current of the venous blood by the narrowing of the auriculo-ventricular orifices, and consequent dilatation of the right side of the heart, coronary veins and other veins of the body, produced a manifest retardation of the movement of the column of fluid circulating in the lymphatic vessels. This influence, first demonstrating itself upon the movement of the contents of the thoracic duct, causing distention and dilatation of the trunk, was transmitted backwards, or rather, produced

stasis of lymph in remote vessels. The lenticular eminences, filled with a transparent fluid, grouped together on the mucous surface of the small intestines, were, probably, ampullar dilatations of the terminal lymph spaces, and the raspberry-like bodies, described as cysts, found in the large intestines, were of like histological nature. Concerning the nature of the gland implication, which formed a tumor of pigeon's-egg size in the right inguinal region, there can be no doubt. The case exemplifies the three divisions of the lymphatic teleangiectasis, made by Lebert, in its lenticular eminences, cyst-like bodies, and transformed glands.

At the conclusion of the above report, Petters refers to the case of an old female patient, "suffering with stenosis of the left venous orifices of the heart," upon whose right arm he found several semi-solid tumors, the size of beans, situated immediately under a fatless cutis, which he regarded as dilated lymph glands.

(To be continued.)

NOTES ON THE HISTORY OF DISINFECTION AND DISINFECTANTS.

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No. 1.

DISINFECTION PRACTICED BY THE ANCIENTS, BUT ITS SCIENTIFIC INVESTIGATION OF MODERN ORIGIN.

The word *disinfection* is applied to the removal of all disagreeable gases and odors, as well as of the decomposition which produces them, and therefore includes deodorizing; and the use of the word in this sense is in accordance with the opinion held from the earliest ages, that the infection of fever or plague was either the same as, or directly allied to these gases.

The preservation of meat by smoking, drying, or pickling with salt, and of vegetables and fruit, by means of honey and sugar, is a kind of disinfection which was practised from time immemorial. Moses, the Jewish law-giver, established specific hygienic rules for camps and cities, described with great care the

modes of disinfecting vessels, clothing and houses, contaminated with putrid or infectious matter; pleasant scents were used not merely for pleasure, but during all epidemics, perfumes and substances with decided odors were everywhere employed as disinfectants and guards against infection and contagion. The use of such antiseptics as resin, pitch or tar, bitumen, aromatics, natron or nitre and cedar oil in the process of embalming the dead bodies of man and animals, was known to the Egyptians, before any authentic history which books then handed down. The Greeks and Romans at an early day directed their attention to the evil effects of crowding, and enacted laws for the proper construction of houses. In Rome the houses were ordered to be at least five feet apart, and not more than nine stories high. Augustus commanded that they should not exceed seventy feet in height, and Trajan made the limit sixty. Zeno, of Constantinople, ordered all houses to be twelve feet apart all the way up, and the projection which caused the houses to meet above were disallowed. The disinfection of the streets and sewers was the duty of a high officer in Rome: "the prætor took care that all sewers should be cleansed and repaired for the health of the citizens, because uncleansed or unrepaired sewers threaten a pestilential atmosphere and are dangerous; and the streets of Jerusalem were swept every day. And finally, from the days of Hippocrates and the great plague of Athens to the present moment, the kindling of fires and the burning of pitch and sulphur in the streets of cities afflicted with pestilence, has been a popular measure for the arrest of pestilence. As the art of disinfection borrows its knowledge from chemistry, it has advanced in accordance with the general advances of this science, which is to a large extent of modern creation, and it may at some future day attain the rank of a science, when the nature of contagious and infectious matters has been fully revealed, and the direct chemical and physical actions of disinfectants established.

Whilst the modern history of disinfectants began in the seventeenth century, it was not until near the close of the eighteenth century that the nature and agencies of oxygen were explained by the discoveries of Priestly, Cavendish, Lavoisier, and other chemists. The investigations of Boyle, showing the influence of air and heat and cold upon putrefaction, were followed by the experiments of Dr. Petit in 1732, on the effects of antiseptics in the preservation of flesh. Petit came to the conclusion that

astringents were the best preservatives of fresh meat, and that their action was similar to drying. Lord Bacon had long before observed that the inducing or accelerating putrefaction was a "subject of very universal inquiry," and says, that "it is of an excellent use to inquire into the means of preventing or staying putrefaction, which makes a great part of physic and surgery."—Nat. Hist. Cent. iv.

Experiments of Sir John Pringle—1750.

In 1750, Sir John Pringle read before the Royal Society his "Experiments upon Septic and Antiseptic Substances, with Remarks relating to their use in the Theory of Medicine,"* and for which he was honored with the Copleian medal. Sir John Pringle was led to make some experiments into the manner how bodies are resolved by putrefaction, with the means of accelerating or preventing that process, by his having had "an uncommon number of putrid distempers" under his care in the hospitals of the army.

From the first series of experiments he concluded, that acids by themselves were amongst the most powerful antiseptics, and that the alkaline salts were likewise of that class. Sir John Pringle thus rates the comparative powers of salts in restraining putrefaction: Sea salt, 1; sal gemmae, 1; tartarus vitriolatus, 2; spiritus mindereri, 2; tartarus solubilis, 2; sal diureticus, 2; sal ammoniacus, 3; saline mixture, 3; nitre, 4; salts of hartshorn, 4; salts of wormwood, 4; borax, 12; salt of amber, 20; alum, 30. According to this table, the antiseptic power of alum is thirty times as great as that of common salt. He experimented also upon the antiseptic properties of myrrh, aloe, assafœtida, terra japonica, gum ammoniacum, opium and camphor. Of all resinous substances, he found camphor to be the strongest "resister of putrefaction." Experiments with infusions of Virginia snake root, Peruvian bark, pepper, ginger, saffron, contraeva root, galls, dried sage, rhubarb, root of wild valerian, leaves of mint, angelica, ground ivy, senna, green tea, red roses, wormwood, mustard seed and horse radish root, proved that they were all powerful "resisters of putrefaction."

* Philosophical Transactions, 1750, vol. xlvi., No. 495, p. 480, No. 496, p. 525, p. 550.

Observations on Diseases of the Army, by Sir John Pringle—Appendix.

After detailing various experiments illustrating the power of Peruvian bark to arrest putrefaction, Sir John Pringle makes the following practical applications.

"Now, since the bark parts with so much virtue in water, is it not reasonable to suppose that it may yield still more in the body, when opened by the *saliva* and the bile, and therefore that in some measure it operates by this antiseptic virtue? From this principle we may perhaps account for its success in gangrene, and in the low state of malignant fevers when the humors are apparently corrupted. And as to intermitting fevers, in which the bark is most specific, were we to judge of their nature from circumstances attending them, in climates and in seasons most liable to the distemper, we should assign putrefaction as one of the principal causes. They are the great epidemic of marshy countries, and prevail most after hot summers, with a close and moist state of the air. They begin about the end of summer, and continue throughout autumn, being at the worst when the atmosphere is most loaded with the *effluvia* of stagnating water, rendered more putrid by vegetables and animals dying and rotting in it. At such times all meats are quickly tainted, and dysenteries, with other putrid disorders, coincide with these fevers. The heat disposes the blood to acrimony, the putrid *effluvia* as a ferment, and the fogs and dews, so common in such situations, stopping perspiration, shut up the corrupted humors and bring on a fever. The more these causes prevail, the easier is it to trace this putrefaction. The *nausea*, thirst, bitter taste of the mouth, and frequent evacuations of corrupted bile, are common symptoms and arguments for what is advanced. We shall add, that in moist countries, and in bad seasons, the intermittents not only begin with symptoms of a putrid fever, but if unduly treated are easily changed into a malignant form, with livid spots or blotches on the skin, or a mortification of the bowels. At the same time it must be acknowledged that such is the quick action of the bark in removing these fevers, that its febrifuge quality must be something different from its antiseptic: and yet we may remark, that whatever medicines (besides evacuations and the bark) have been found useful in the cure of intermittents, they are mostly, so far as I know, powerful correctors of putrefaction, such as myrrh, camomile flowers, wormwood,

* Philosophical Transactions, 1755, xlix., p. 332.

tincture of roses, alum with nutmeg, the vitriolic or other strong mineral acids, with aromatics."

Ventilation of Ships in 1755 by Dr. Stephen Hales.

In 1755, Dr. Stephen Hales* published in the Transactions of the Royal Society of London, an article "On the Great Benefit of Ventilators in many instances in Preserving the Health and Lives of People in Slave and other Transport Ships."

Captain Thomson, of the Success frigate, in a letter to Dr. Hales, dated London, September 25th, 1749, states that he "found this good effect from ventilation, that though there were near 200 men on board for almost a year, yet he landed them all well in Georgia, notwithstanding they were pressed men and drawn out of jails, with distempers upon them." He states also that all kinds of provisions in the ships kept better from the coolness and freshness of the air in the ship caused by ventilation. Mr. Crammond and Captain Ellis testified to the value of free ventilation in preserving the lives of the crew and slaves during the voyage from Africa to America. Also the Earl of Halifax informed Dr. Hales of the great benefit they found by the use of ventilators in several Nova Scotia transport ships, 12 to 1 more having been found to die in unventilated than in ventilated ships. In view of such facts, Dr. Hales affirmed: "It is indeed a self-evident thing, that the changing the foul air frequently in ships in which there are many persons will be a means of keeping them in better health than not doing it. It is the high degree of putrefaction (that most subtle dissolvent in nature) which a foul air acquires in long stagnating, which gives it that pestilential quality which causes what is called the jail distemper. And a very small quantity, or even the vapor of this highly attenuated venom, like the infection or inoculation for the small-pox, soon spreads its deadly infection."

Dr. John Huxham,* in his Essay on Fevers, in the Appendix, details a method of preserving the health of seamen in long cruises and voyages, and advises that "every sailor should have at least a pint of cider a day, besides beer and water. And I would advise also a frequent and free use of vinegar in the seamen's diet, especially when the provisions begin to grow rancid. Besides this, the decks, etc., should be frequently washed or

* Third Ed., London, 1757, p. 262.

sprinkled with vinegar, after having drawn the gross and foul air out of the ship by Mr. Sutton's contrivance or by Dr. Hale's ventilators, which should be done once at least every day.

EXPERIMENTS OF DR. DAVID MACBRIDE, IN 1764, ON ANTISEPTICS.

Surgeon David Macbride* published, in 1764, his Five Experimental Essays on the Fermentation of Alimentary Mixtures, Fixed Air, Antiseptics, Scurvy, and the Dissolvent Power of Quick-lime.

The old chemists believed that all the true spontaneous changes or transmutation of bodies were the effects of fermentation; but *Boerhaave*, disliking so ominous an extension of terms, restrained it within very narrow limits, and would suffer nothing to be called fermentation which did not produce either an ardent spirit or an acid, thus entirely confining it to what are usually called the *vinous* and *acetous* stages, and altogether rejecting the *putrefactive*, as looking on putrefaction to be quite a different process, and in no way allied to fermentation. But this restriction, which was meant for the sake of clearness and precision, introduced confusion with regard to the word putrefaction. This word, in its common acceptation, was always understood to imply a plain tendency to destruction in bodies, accompanied with every sign of rottenness and offensiveness; and accordingly it was often met with in cotemporary writers with Macbride, in this sense, when perhaps, in the very same page the statement is made that the aliment is prepared for nourishing the human body by putrefaction—that motion, life, and heat are communicated to the fluids by putrefaction, and that nature throws off morbific matter from the constitution by means of putrefaction.

The later chemists, therefore, who reduced this branch of chemistry to a more intelligible and methodical system than Boerhaave, approached more nearly to the ancient opinion, and with Macquer, defined fermentation to be an *intestine motion, which arising spontaneously among the insensible parts of a body, produceth a new dispensation and a different combination of the parts.*

Macbride, accepting this definition, held that a great number of the natural changes which daily take place in the animal and vegetable kingdoms should be looked on as so many modes of

* London, 1764.

fermentation; and that in particular, that the digestion of our food should be looked on as a *fermentatory* process. Macbride held that "the experiments already made by the very learned and ingenious Dr. *Pringle* seem sufficient to convince every unbiassed reader of the truth of this theory, which, if we consider the matter with any degree of attention, we shall find to be absolutely necessary, in order to bring about that new dispensation and that different combination of the insensible parts of the alimentary substances which make the immense variety of discordant mixtures, that enter the composition of our food, to depart so far from their original nature as to become one mild, sweet, and nutritious fluid. For this demands a great deal more than mere mechanical mixture and dissolution, which is the most that the common theories of digestion amount to, since they do not seem expressly to require, nor indeed suppose, such an absolute change to be wrought, in the first passages, in the nature of the different kinds of food as would render them susceptible of that firm union, and that strong attraction, by the means of which they become so soon one and the same substance with the body into which they are received.

"It also appears pretty plain, from Dr. Pringle's experiments, that there is something generated, or set free, during the first stage of the fermentation of animal and vegetable mixtures, which hath a power of correcting putrefaction. But in order to obtain still farther proof concerning this particular point, as well as to gain a more thorough knowledge of fermentation in general, I determined to repeat some of the doctor's experiments, and to try such others as I thought had the greatest tendency towards an illustration of both."—*Essay on the Fermentation of Alimentary Mixtures*, pp. 1–4.

Hoffman, however, previous to Macbride, had insisted much on the complete change that the aliment undergoes in the first passages, and makes digestion a mere fermentatory process, as may be seen at large in his chapter *de Alimentorum Solutione and Solution Usu*, and the three succeeding ones.

The labors of Hoffman, Pringle and Macbride, were of the highest importance, in that they referred putrefaction, fermentation and digestion, to the same general causes.

Macbride repeated and extended the experiments of Pringle, and confirmed his conclusions that certain combinations, as the mineral acids, aromatic gums and Peruvian bark, possess power-

ful antiseptic virtues, *resisting* and correcting putrefaction. He also established the fact that fixed air (*carbonic acid*) tended to retard fermentation.

Macbride threw out the following suggestions with reference to the treatment of yellow fever. "However I will, in the mean time, recommend the trial of an experiment in that very destructive disease, the *putrid yellow fever* of the *West Indies:* it is to give the patients repeated doses of the *alkaline salts* in fresh *lime juice,* or the like, and let it always be swallowed during the act of effervescence, and let the patient's drink be somewhat of the highly fermentable kind—I would even propose the juice of the *green sugar cane*, diluted, and acidulated with some of the recent sour juices."

"I find that Dr. Lind often prevents the fits of an ague by giving these mixtures in the manner above mentioned. And *Riverius* used to check vomiting therewith in an infant.

"A surgeon who was some time at Goree, on the coast of Africa, tells me that the natives give in these fevers, with very good success, a drink prepared by macerating in water a fruit of the plant kind that grows there in great plenty."—Essay on the Respective Powers and Manner of Acting of the Different Kinds of Antiseptics, pp. 165, 166.

Lime was found by Macbride to prevent but not remove putrefaction. Animal fluids, he observes, will remain for a long time without putridity if kept from the air. He says that astringent mineral acids and ardent spirits "not only absorb the matter from the putrescent substance, but likewise crisp up its fibres, and thereby render it so hard and durable that no change of combination will take place for years."

DISINFECTION AS PRACTISED IN THE HOSPITALS OF MALTA, AND IN THE LEVANTINE LAZARETTOS.

Disinfection has been practised in the hospitals of Malta and the Levantine lazarettos from an early, and as far as my information extends, for an indefinite period. The plague was first noticed in the Maltese annals* in 1549–'50; in 1593 it again appeared. In 1623, 40 persons died of it, and in 1663 it reappeared, when only 20 persons fell victims to it; but its advent in 1675 was dreadful, for 11,300 persons died of this terrible malady. For

* History of the British Colonies, by R. Montgomery Martin, vol. v. Possessions in Europe, London, 1835, p. 192.

130 years Malta was free from plague, when it broke out with fearful violence in 1813. From its commencement in April, 1813, to its termination in September the same year, 4,486 deaths took place in the island, of which 1,223 occurred in Valetta, the mortality being about 80 in the 100 attacked. The monthly progress is shown by the deaths from April to November, viz.: April, 3 cases; May, 110; June, 800; July, 1595; August, 1,042; September, 674; October, 211; November, 53. *Maximum* of the thermometer during these months was, 71°, 82°, 84°, 88°, 86°, 88°, 83°, 72°. Strong winds blew during part of the period, particularly in July. The progress of the mortality resembled that of the yellow fever of America.

The process of expurgation at Malta, during the plague or other pestilential diseases, consisted of the free and continual admission of air to all parts of the house and furniture; the removal of filth of every species; ablution of all wood-work by a strong lye of soap, water, and the application of hot lime-wash to all the walls, from the cellar to the garret, taking care to remove all loose or decayed pieces of plastering; all the drains, etc., completely emptied of their contents, and thoroughly cleansed; the clothing and furniture most minutely cleaned, and such parts as are not susceptible of damage from water submitted to copious effusions, and even boiled in a strong lye when practicable; books and all other similar articles placed in the open air, on terraces, etc., and every decayed, superfluous or useless article, particularly in the form of rags, cordage, paper, cloths, hangings, etc., destroyed.

To these precautions were added fumigations of various kinds, mineral and vegetable; those from the mineral acids were very generally used in the public hospitals. The smoke of straw dampened with water, and the fumes of vinegar, were also a very frequent means of fumigation; but the great officinal formula of the Levantine lazarettos is as follows; it, however, was principally applied to goods, letters, etc.: Sulphur, six pounds; oripment, crude antimony, litharge, cumin seed, euphorbicum, black pepper, ginger, of each four pounds; assafœtida, cinnabar, sal ammoniac, of each three pounds; arsenic, one pound—all reduced to a fine powder, to which is added raspings or sawdust of fine wood, six pounds; bran, fifty pounds.

This most offensive and penetrating composition appears to

to have been long in use, for it is noticed by Dr. Russel in his History of Aléppo.*

In the burning of such a compound, sulphurous acid and arsenious acid would necessarily be evolved, as well as some of the compounds of mercury, and it is perhaps true that modern sanitary science has failed to discover a more efficient and at the same time a more offensive disinfectant.

The exposure of the clothing to the night air was supposed by many to be the most effectual of all means of purification, and the Turks and other inhabitants of the Levant place the most implicit confidence in its efficacy, which they attribute principally to the operation of the dew.

Coins and other articles were purified by passing them through vinegar, and the free use of oil in anointing the body has prevailed from time immemorial in the Levant and East as a means of protection from the plague.

The method of disinfection practised in the quarantine stations and lazarettos of the south of Europe and Levant were investigated and illustrated by the celebrated John Howard† and Dr. Charles Maclean,† who submitted themselves to the barbarous restrictions of the odious quarantine; and the more important facts recorded by these authors are embraced in the preceding observations.

Hydrochloric Acid (Muriatic Acid), Nitric Acid, Nitrous Acid, Peroxide of Nitrogen, Binoxide of Nitrogen, and Chlorine, as Disinfectants.

An essay, recommending nitrate of potash in ventilation, received the commendation of the Academy of Dijon in 1767. Dr. Robert Angus Smith suggests that when this substance was used in ventilation, the saltpetre was heated, in which case it would give off oxygen gas, which at first is very pure; afterwards nitrogen comes off, and the salt itself, or at least the base, is carried

* History of the British Colonies, by R. Montgomery Martin, vol, v. Possessions in Europe, pp. 194, 195.

† An Account of the Principal Lazarettos in Europe, with various papers relative to the Plague, together with further observations on some Foreign Prisons and Hospitals, etc. By John Howard, F.R.S. Warrington, 1789.

‡ Results of an Investigation Respecting Epidemic and Pestilential Diseases; including Researches in the Levant Concerning the Plague. By Chas. Maclean, M.D. London, 1817; 2 vols.

into the air, causing a very stifling sensation. The oxygen, however, would be valuable. This plan was remarkable, as having been tried before the discovery of oxygen, which was in 1774.

Guyton Mirveau* made a valuable and practical advance, in 1773, when he proposed fumigation with muriatic acid vapors, as a mode of disinfecting hospitals; but the acid fumes of burning sulphur had been used in Greece and Rome, for the arrest of pestilence, two thousand years before, and this latter agent is far superior to muriatic acid as a disinfectant.

The Chancellor of the Legion of Honor, writing to him in the name of the Emperor Napoleon, in 1805, says: "Europe and America know that since 1773 you have employed your discovery of the application of muriatic acid fumes to arrest the effects of contagious and direful diseases." He obtained for it the brevet of an officer of the Legion of Honor.

The Danish method of fumigation is by the use of muriatic acid: common salt may be used by pouring sulphuric acid on it, without heat, and nitric may be used, but the products are different.

The use of muriatic acid by Guyton Mirveau, in 1773, has justly been regarded as the beginning of acid fumigation, leaving out the ancient use of vinegar and of sulphurous acid.

Chlorine gas was discovered by Scheele in 1774; and whilst we cannot go to the ancients for its history, it has nevertheless been supposed that the ancient Egyptians used it, as they evidently obtained nitric acid from the saltpetre, and this must have been in their experiments mixed with common salt, thus giving nitrous gases and chlorine.

In the Dutch receipt used not much after the time of the discovery of chlorine gas; the acid fumigation was obtained by pouring sulphuric or nitric acid on common salt; the first gives muriatic and the second chlorine.

Muriatic acid destroys vegetation, and attacks with violence metallic substances, and is irritating to the lungs of animals, and is poisonous when inhaled in any considerable quantities. It is not a good practical antiseptic, and is inferior in its disinfectant properties to chlorine and nitrous acid.

Dr. Carmichael Smith used the nitrous fumes at Winchester,

* Traité des Meyens de Desinfecter l'Air, de prevenir la contagion, et d'en arrêter les Progress. 1805.

in 1780, and afterwards in the Fleet, and in 1802 the British Parliament voted him £5000 for his method of acid fumigation.

The nitrous acid fumes were tried very largely towards the close of the last century and the beginning of this, in the hulks and prisons where Spanish, French and Russian prisoners of war were confined.* At that time so rapidly did the disease (typhus or ship fever) spread in the confined spaces where so many men were kept, that the efficacy even of ventilation was doubted, though there can be no question that the amount of ventilation which was necessary was very much underrated. Both at Winchester and Sheerness the circumstances were most difficult. At the latter place (in 1785), in the hulks, 200 men, 150 of whom had typhus, were closely crowded together; 10 females and 24 men of the crew were attacked; 3 medical officers had died when the experiments commenced. After the fumigations one attendant only was attacked, and it appeared as if the disease in those already suffering became milder. In 1797 it was again tried with success, and many reports were made on the subject by army and navy surgeons. It was subsequently largely employed on the Continent,† and everywhere seems to have been useful in typhus exanthemicus. Fumigations with nitrous acid were employed by Ramon da Luna‡ in yellow fever, and it is asserted that no agent was so effectual in arresting the spread of the disease.

I have shown, by numerous experiments§ upon living animals with the binoxide and peroxide of nitrogen, liberated by the action of nitric acid on copper filings, that these gases are powerful poisons, exciting the muscular nervous and respiratory and circulatory systems, and finally producing pulmonary congestion, inflammation, coma, convulsions and death. The blood in all the vessels and organs of the body presents a brownish bleached appearance after poisoning by this gas.

Chlorine, regarded by many as a much more powerful disinfectant, and before which muriatic acid, nitric acid and nitrous acid were destined to give way, was introduced as a fumigating agent

* An account of the experiments made at the desire of the Lords Commissioners of the Admiralty, by T. C. Smyth, 1796.

† Chevallier, Traité des Disinfectants, pp. 39, 40.

‡ Ann. d'Hygiene. Avril, 1861.

§ Medical and Surgical Memoirs, vol. i., pp. 298, 327, 512.

by Fourcroy, in 1792, and the gas was subsequently introduced into England, as a disinfecting agent, by Cruikshank.

As long ago as 1807, fumigations of chlorine were used by Mojon* to destroy the emanations from the stools of dysentery with the best effects; and this gas has also been employed as a disinfectant in *typhus exanthemicus*. Many experiments made in Austria and Hungary, in 1832, seem to prove that chlorine diffused in the air has no action on the spread of cholera: Mr. Herapath, of Bristol, asserted, in 1849, that it was a complete preservative, and an opinion partly to the same effect was expressed in Paris in 1865; but the Hungarian experiments are much more conclusive, inasmuch as they were positive and not negative—that is to say, chlorine did not prevent the outbreak of cholera. Charcoal, also, so far appears inert, that in the Crimean war cholera prevailed severely on board of a ship loaded with charcoal.

On the other hand, Ramon da Luna has asserted that nitrous acid has really a preservative effect against cholera, and that no one was attacked in Madrid who used fumigations of nitrous acid. But negative evidence of this kind requires to be on a very large basis to prove such an action. At the same time, the facts should certainly lead to a fair trial of nitrous acid fumes in all cholera epidemics. In none of the trials, however, were the substances added to the stools; they were merely diffused in the air.†

The testimony of Mojon, in 1807, as to the value of chlorine fumigations in dysentery, is positive. Thus he says: "The dysentery became contagious in the hospital at Genoa. Almost all the sick of my division, nearly 200, were attacked; and as we know that this disease, when contagious, is communicated ordinarily from one person to another by the abuse which exists in all hospitals by making the same latrines serve for all the sick of a ward, I wished to see if fumigations of chlorine had the power of destroying these contagious exhalations. I therefore caused fumigations to be used twice daily in the latrines, and in a few days I was able to destroy that terrible scourge, which already had make some victims." It appears, therefore, that the chlorine was in the air, and not added to the stools.

Chlorine, though widely diffused through nature in combination

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* Chevallier, Traité des Disinfectants.

† A Manual of Practical Hygiene, etc., by Edmund A. Parkes, M.D.; sec. ed., p. 85. London, 1866.

with metals, and especially with sodium, was not known in the uncombined state until 1774, when it was discovered by Scheele, and its elementary nature was first established by Davy in 1810.

In order to understand the terms used by those who first employed chlorine as a disinfectant, it is important to note the following facts. Chlorine was originally regarded as a compound body, namely, *organized muriatic acid*, or *oxymuriatic acid*. Muriatic acid was supposed to be a compound of oxygen with the unknown radicle *muriaticum* or *murium*, and chlorine or oxygenized muriatic acid was supposed to contain the same radicle united with a larger quantity of oxygen. Chlorine owes its disinfecting properties to the following well-established facts. Chlorine is one of the heaviest substances that are gaseous at common temperatures, being 35½ times heavier than hydrogen, and 2½ times heavier than atmospheric air, and hence the hold of a ship or any confined space may be readily filled with the gas by simple displacement of the atmospheric air and foul gases. It has a pungent, irritating smell, and is irrespirable unless very much diluted. I have, in the first volume of my Medical and Surgical Memoirs,* by a series of experiments, illustrated the action of chlorine upon living animals, and demonstrated that when largely diluted with atmospheric air or with water, this gas acts as a powerful cardiac stimulant, increasing both the force and frequency of the heart's action; and that when inhaled in large quantities it acts as a powerful irritant upon the mucous surfaces of the throat and lungs, inducing pulmonary congestion, pneumonia, convulsions, and death. When absorbed, it combines with certain constituents of the blood, and chiefly with the coloring matter of the colored corpuscles. After death caused by the inhalation of chlorine, the blood from all parts of the body, as well as the muscles of the heart and of voluntary motion, present a brown and bleached appearance. Chlorine is in like manner destructive of plants.

If certain diseases be propagated by animalculæ or fungi, or by living germinal matter, or by organic compounds having an analagous composition and acting in an analogous manner to ferments, chlorine disinfects by destroying life and chemically altering the organic compounds submitted to its action.

It is well established that chlorine possesses very active chemical properties, and gives origin to many phenomena of

* Pp. 297, 303, 304, 314.

combination, substitution and indirect oxidation. It is moreover non-inflammable, and does not unite directly with oxygen under any circumstances. At ordinary temperatures chlorine combines directly with all the *metals*, with many metalloids, such as *hydrogen* and *phosphorus*, and many compound bodies, such as *sulphurous anhydride*, *olefiant gas*, *benzene* and *carbonic oxide*. Paper dipped in oil of turpentine and plunged in a vessel of chlorine gas, takes fire spontaneously, yielding abundance of hydrochloric acid and carbon. Chlorine displaces *bromine*, *iodine*, and *fluorine*, from their combinations, by equivalent substitution. Chlorine also displaces *hydrogen* by equivalent substitution, one half of the chlorine taking the place of an equivalent quantity of hydrogen, while the other half unites with the hydrogen eliminated. Chlorine, by combining with hydrogen or a metal, acts indirectly as an oxidising agent. Chlorine destroys the color of most organic pigments, and this bleaching action is usually accompanied by oxidation and substitution. Chlorine also destroys odors of various kinds, and possibly infectious miasmata, and poisonous organic compounds, by abstracting hydrogen with or without substitution, or by indirectly oxidising.

Chlorine therefore acts upon organic compounds, and alters their chemical and physical properties, in four distinct modes.

1st. It may enter into direct combination.

2d. It may simply remove hydrogen, as in the conversion of alcohol into aldehyd.

3d. It may act as an oxidising agent, by liberating oxygen from water.

4th. It may produce compounds by substitution, in which hydrogen is displaced atom for atom by chlorine, and hydrochloric acid escapes. This kind of substitution is of frequent occurrence, and some of the most instructive instances are afforded by the action of chlorine upon ether and other derivatives of alcohol. By attention to a number of precautions, a succession of compounds is furnished in which, atom for atom, the hydrogen is displaced by chlorine, until at length the last product obtained is the solid chloride of carbon. The discovery that the substitution of chlorine for hydrogen was practicable at first excited the greatest astonishment among chemists, since, owing to the powerful attractions of chlorine, particularly when its electrical opposition to hydrogen is borne in mind, the possibility of such an occurrence was never suspected. The displace-

ment of oxygen by chlorine was familiar to the mind of the chemist; but the displacement of hydrogen by chlorine was a circumstance in opposition to the doctrines of chemical attraction then prevalent. The discovery of this remarkable fact has led to the production by substitution of an immense number of analogous compounds in other groups of organic bodies.

It is evident from the preceding facts, that the discovery of chlorine, and its application to the destruction (disinfection) or chemical alteration of putrefying and fermenting organic compounds and animal poisons, was an important advance in sanitary science.

As we have seen, the application of the so-called *oxygenated muriatic gas* (chlorine) was employed at the close of the last century, and in the beginning of the present, with success, both in France and England, in the destruction of contagion or infection.

Methods of Fumigation Practised in the British Navy during the Eighteenth and Nineteenth Centuries.

The following method of extricating chlorine (oxygenated muriatic gas) for the fumigation of ships was recommended to Dr. C. Chisholm,* by Mr. Cruikshank, Chemist to the British Board of Ordnance. "Let four pounds of common salt be intimately mixed with a pound and a half of manganese, reduced to fine powder. Introduce them into a leaden vessel with a cover, and add about two pounds of water through a hole in the cover. By means of a glass funnel introduce by degrees, and at different times, three and a half pounds of vitriolic acid. In every addition of the vitriolic acid the oxygenated gas will escape in great abundance, through a tube connected with the vessel, and may be directed to any place and in any quantity we please. By the application of a moderate heat to the vessel, a very considerable quantity of gas may be obtained from the same materials after they have ceased to give out any in the cold." Dr. Chisholm affirmed that "this acid, in moderate quantities, may be employed to arrest putrid and offensive smells in any

* An Essay on the Malignant Pestilential Fever introduced into the West Indian Islands from Boullam, on the Coast of Guinea, as it appeared in 1793, 1794, 1795 and 1796, etc. By C. Chisholm, M.D.; 2d ed., p. 30. London, 1801.

particular ward without removing the patients, and this it effects more completely than vinegar, or any other means usually employed."

Dr. Thomas Trotter,* Dr. C. Chisholm,† and Dr. Samuel L. Mitchill,‡ opposed the method of Dr. Carmichael Smith for preventing or stopping contagious diseases on ship-board by *nitrous fumigation*, but this discussion is not worthy of farther consideration, as the writings of Drs. Trotter, Mitchill and Chisholm, on this subject are singularly wanting in accurate details of experiments illustrating the exact value of the so-called nitrous fumigations, although their authors possessed superior advantages for a thorough and scientific investigation of the subject.

Dr. Trotter justly lays great stress upon the value of free ventilation in ships; Dr. Mitchell advocated strenuously the use of lime for the destruction of *septic* poisons; and Dr. Chisholm, whilst admitting the value of free ventilation, advocated the free use of vinegar as a disinfectant in ships and hospitals.

Dr. Lind, one of the highest authorities of his day in all that relates to the hygiene of ships and seamen, in speaking of certain contagious diseases, says: "The clearest idea we can conceive of the manner in which this infection is communicated, is to suppose there is in all infected places, adhering to certain substances, an envenomed *nidus*, or source of *effluvia*, *corpuscles*, or whatsoever infection may be supposed to consist, and that as the air is more or less confined, becomes more or less strongly impregnated with them."§

In some parts of his valuable papers on fever and infection, Dr. Lind appears to be satisfied that *animalculæ* had nothing to do with the propagation of contagion; but in the preceding quotation he modifies the old doctrine, and expresses it in terms closely allied to those used by some modern writers. Dr. Lind looked upon infected clothing as the envenomed nidus, where a new generation of *corpuscles* were multiplied, which gave to the

* Medicina Nautica, an Essay on the Diseases of Seamen, in three volumes, by Thomas Trotter, M.D., etc. Sec. ed., London, 1804, vol. i., pp. 171, 251, 302, 362, 431, 457.; vol. ii., pp. 32, 78, 274, 436; vol. iii., pp. 144, 298.

† An Essay on the Malignant Pestilential Fever, introduced into the West India Islands from Boullam on the Coast of Guinea, as it appeared in 1793, 1794, 1795, 1796, etc., by C. Chisholm, M.D.; sec. ed., London, 1801, vol. ii., pp. 25, 36.

‡ The Medical Repository, conducted by Samuel T. Mitchill, M.D., Edward Miller, M.D., and Elihu Smith.

§ Papers on Infection.

noxious matter an increased virulence, and became more certainly productive of the disease than when it first diffused itself from the body. That this was his meaning is abundantly confirmed by his rules for dispelling and purifying contagion. Every substance which he prescribes is with the direct intention to destroy animal life; hence the heat of an oven, fumigations with sulphur (brimstone), gunpowder, tobacco smoke, boiling vinegar, etc., are his main agents.

It was not merely to purify clothes, bedding and other substances, that Dr. Lind applied fumigations with these substances, but the wards of the sick in hospitals, and the decks and holds of ships, became also subject to the process.

The population of a British ship of war before the application of steam to navigation was more dense than that of the most crowded city, and hence, from the earliest history of the navy of this great and conquering nation, we find that minute attention was paid to the health of the seamen, and measures were adopted at an early day for the arrest of those contagious diseases, typhus and yellow fever, which were prone to spread with great rapidity and to commit fearful ravages in fleets; and it is but strict justice to say that whilst the world is indebted to England for the discovery of the means of arresting small-pox, and preventing the fearful ravages of scurvy, in navies and armies and cities and nations, we are also indebted to the same country for the first and most thorough system of fumigation and disinfecting ships affected with contagious diseases. In proof of this assertion, we select the following account of "*The Means Used to Eradicate a Malignant Fever which raged on board His Majesty's ship Brunswick, at Spithead, in the spring of the year* 1791*; with some short Observations on the most probable means of Preserving the Health of a Ship's Company; by Sir Roger Curtis,* the Captain of the Brunswick.*"

"The health of the crews of His Majesty's ships is a consideration of so important a nature, that whatever may contribute to its preservation, or to the removal of contagion when it unhap-

* Captain of the Fleet of Earl Howe.

"To souls like these, in mutual friendship join'd,
Heaven dares entrust the cause of human kind."

—*Addison, on Marlborough and Prince Eugene.*

Medicina Nautica, an Essay on the Diseases of Seamen, by Thomas Trotter, M.D., etc., vol. i., pp. 431–439.

pily exists among them, are circumstances which merit the serious attention of every officer. Those who are conversant in our maritime history must have regarded with horror the dreadful havoc which disease, for a long-continued series of years, made amongst the seamen of this country. They will have observed that disease carried off an hundred times more than fell by the hands of the enemy. During those unhappy periods it is true that medical skill had not reached the degree of perfection it now possesses; but the chief cause of the dreadful calamities which befel our fleets was the want of that order, cleanliness, and internal economy, which is now more generally observed. It is now proved that a due attention to these circumstances operates most powerfully, in all situations, towards the preservation of health. But, notwithstanding the strictest adherence to the wisest precautions, disease but too often finds it way amongst us. Fevers of the most infectious and dangerous kind frequently rage in our ships. They are sometimes generated there by a want of cleanliness in the ships, and in the people, but they are more generally propagated by the introduction of infected persons.

"When contagion has once taken root in a ship, the different parts of it, as well as the persons and the clothes of the crew, become highly infected, and it cannot be removed without great labor and perseverance. Under circumstances when neither the stores nor the crew can be removed from the ship, the difficulty of eradicating infection is greatly augmented; but even thus situated, it is *possible* to be effected. It requires, however, great and unremitting pains. The slight and ordinary modes of fumigation, by correcting the air, are serviceable in the *prevention* of sickness; but when contagion is established, a more powerful application of it, and other means must be adopted.

"The Brunswick was afflicted with a putrid and highly infectious fever, when lying at Spithead, in the spring of 1791, which raged so violently that frequently ten or fifteen men would fall down in it in a day, and more than one hundred and fifty were in the hospital at Haslar at one time. Its progress in the ship was, however, at last arrested, and the means made use of are hereafter related, that they may be followed by others under similar circumstances if they are deemed to be deserving of notice.

"As seamen have great reluctance in complaining when they

find themselves but slightly indisposed, and it being very material that infected persons should, as speedily as possible, be removed from the body of the ship's company, to impede further communication of the disease, as well as to facilitate the cure of those attacked by an early application of medicine, great attention was observed by all the officers in immediately reporting every man who appeared to have the smallest indisposition, whether it was discovered by day or by night. The whole space under the forecastle on the larboard side including the roundhouse, was appropriated to the sick, and the obtrusion of any other person absolutely prevented.

"To this place every person was removed the moment it was discovered that the disease had seized him, and the primary remedies towards cure immediately applied, from whence, as speedily as could be, he was carried to the hospital, care being had that everything belonging to him was sent with him.

"Moisture operating more powerfully than any other cause in the production of disease, as well as in the propagation of it, our first care was the endeavor to remove all humidity and foulness of air.

"The well was bailed out, scraped and swabbed till entirely dry, and then a large fire was kept burning in it for several hours every day, so that the smallest dampness therein was not suffered to remain. The hold had the upper tier of casks removed from it and sent on shore. Then fires were kindled in it and kept burning for many hours every day, confining the smoke as much as possible, and occasionally shifting the fires from place to place; and in the fuel made use of, as many empty tar barrels were consumed as could be collected for the purpose; at other times wood, and occasionally coal, intermixed with shakings of tarred ropes, every precaution being taken to prevent accidents. When the fires were extinguished, the gratings of the hold were removed and the wind-sails let down.

"The horlop was constantly kept as clear as possible of every thing that prevented a free circulation of air, and a fire placed sometimes in one part of it and sometimes in another.

"The cockpit, steward room and bread room, were treated in the same manner. The doors of all the store rooms were occasionally thrown open, and the ventilators worked unremittingly day and night.

"Three fires on each side the 'tween decks were kept burning

almost the whole day, and these were from time to time shifted to every part of it. The manger was cleared of all manner of lumber and a fire occasionally placed therein. The deck was seldom washed, and never but when the weather was such that the people could remain upon the upper deck until it was perfectly dried by the fires and the natural currents of the air, nor was any person whatever permitted to go below, under any manner of pretence, until the general permission for it was given. When the deck was not washed it was kept perfectly clean by other means; and slops about the decks, and every sort of dampness, was specially guarded against. The sides, beams, carvings, the decks overhead, and every part of the 'tween decks, were whitewashed twice or thrice during the course of the disorder.

"Fumigation in the hold was thus conducted: Four half tubs with stands in them were disposed therein. In each of the tubs was placed an iron pot, into which was put about two pounds of brimstone tied up in a piece of canvas. The gratings were laid, and so closely covered with tarpaulins, old hammocks, swabs, etc., that none of the smoke might escape. When everything was prepared, a red hot loggerhead or iron sid was put into each of the iron pots, which set fire to the brimstone, and the men performing this service immediately leaving the hold by a grating of the main hatchway being kept open for the purpose, the hatches were entirely closed.

"It was the custom to fumigate the hold, horlop, and 'tween decks at the same time; but as we could not be furnished with a sufficient quantity of *brimstone* to make use of it in all the different parts of the ship at the same period, it was usual, therefore, to use the *brimstone* in the hold, horlop and between decks, in rotation; and when the brimstone was not applied there were substituted what are called devils, made of gunpowder wetted with vinegar. In those parts of the 'tween decks least accessible to air, and where consequently there is a greater degree of contagion, the flashing of powder from pistols is attended with very good effects, for the shock of the explosion assists very powerfully in dispersing the infectious matter attached to the timbers of the ship.

"During the fumigation the men's hammocks were all hung up in their places, with their mattrasses and blankets spread over them, and all their spare apparel was so disposed of upon the guns, etc., as to receive the full effect of the fumigation; and the

clothes which the men wore upon deck during one fumigation were changed upon the next and placed below, that all their things might receive equal purification.

"The gratings on the main deck were laid and covered, and with such care that no smoke could escape, and the ports were carefully barred The brimstone in tubs, in the devils, with other safe precautions, were dispersed about the decks and then lighted; the persons who did it escaping upon deck, and closing the hatchway after them, the operation was completed.

"The smallest crevices of the ship were pervaded by the smoke and effluvia of the brimstone, and affected every part of her in a powerful and astonishing manner.

"Three hours were generally suffered to elapse before the gratings were uncovered and the ports opened, and a free circulation of the air for a very considerable time was afterward necessary before a person could remain below without inconvenience. The whole of the hull of the ship, and everything therein, animate and inanimate, was strongly impregnated with the fumes of brimstone, and to such a degree, that it was perceptible when to leeward of the ship at a considerable distance from her.

"In damp weather these fumigations were practised every day, and never less than three times a week. The fires were continued daily.

"The sick berth was attended to with the same solicitude, to impede and eradicate infection, as has been described in respect to other parts of the ship.

"Nor were the persons and apparel of the men disregarded, Every man in the ship was washed from head to foot with warm water and soap, and more than even the usual pains were taken that they should be cleanly in all respects. If any old and useless clothes were found they were thrown overboard. Such serviceable apparel as was discovered the least filthy was washed and fumigated, and the men were forbid to wear woolen trowsers. On fine days the whole of their bedding was hung upon lines between all the masts, and in the rigging, and exposed thus to a free ventilation for many hours, and their clothes of every kind were treated in the same manner.

"The recovered men, returned from the hospital, were treated upon their coming back to the ship with great precaution. Having received at the hospital notice of their recovery and the intention of their return, a careful petty officer was sent thither

to see all their clothes and bedding well aired, by being spread abroad for two days, and well beat and cleaned, previous to their coming to the ship. Upon their arrival on board every man was washed in warm water and with soap, and an entire change of clothes was then put upon him; all the rest of his apparel and his bedding were immediately fumigated with brimstone, which was performed by suspending it over the fumes issuing from an iron pot placed in a half tub, in a convenient place under the forecastle.

"Such were the means made use of with punctual and unceasing perseverence. They certainly were attended with no little labor; but the fever with which they were afflicted having been entirely subdued, the gratification arising from the reflection that our endeavors were crowned with success, was the most ample recompense for all our trouble."

495 St. Charles street, New Orleans, Aug. 7th, 1877.

TUBERCULOSIS.

BY CHARLES G. POLK, M.D., Phar. D.

Pulmonary consumption is an ambiguous, or rather a comprehensive term, embracing several distinct maladies, which have no connection with each other further than their location in the respiratory apparatus and the common characteristic of inducing lesions of continuity.

Pneumonic phthisis is essentially an inflammatory disease, from its beginning until its termination, and may run its entire course without the production of a trace of a tubercle, but producing lung disintegration through tyromatous metamorphosis of inflammatory products. While tubercles do much of their damage through the pneumonia they awaken, inflammation is not necessarily concerned in their production, and is not an unescapable consequence of their presence.

Sclerotic phthisis neither has a tubercular origin, seeming to emanate from irritation of the air cells, whether depending upon a syphilitic diathesis or from a metallic or mineral dust.

These forms of phthisis will not be considered in this paper; it will be the tubercular form which alone claims our consideration.

Tuberculosis may be defined to be a dyscrasia or cachexia, constitutional in its extent, expressed in deficient vital force, and producing its local lesions in the different organs of an animal organization through defects in the nutritive system; by which protoplasms are elaborated of a low degree of vital endowment, unfit to take part in the morphological changes inseparable from structural or functional integrity, which aggregate together and form corpuscles incapable of further congregation, and which retrograde through the various stages of tubercle, inducing inflammation, ulceration, and disorganization.

The accuracy of the above definition will become evident, as we examine the phenomena which characterize the origin and accompany the dyscrasia through its entire course. Emaciation and impaired strength nearly always antedate every other symptom. The smitten one finds he is not quite so strong as usual, that exertion he has previously borne without fatigue soon wearies him, and also notices that his flesh has shrunk, that he is not quite as heavy as formerly, and yet he can not account for these evidences of ill health. As yet the appetite is unimpaired, and the vesicular murmur is undisturbed in the lungs. These indicate a lesion in nutrition. The amount of waste in the system, which, however, may be not greater than normal, indicates that there is a defect in the nutritive processes—that the elements of repair are not furnished in an adequate amount. Protoplasms are not generated either sufficient in quantity, or of a degree of vitality to supply the materials of the organism consumed in every physical, vital, or mental process. We thus discern the first departure from health displayed in granule elaborating glands. Tissue waste is not compensated, and emaciation ensues. Although we find the first warning of the presence of tuberculosis displayed in emaciation attendant upon a defect in nutrition, by which protoplasms are either deficient in quantity or in vital endowment, we cannot halt our investigation at this point. Accepting the granule as the morphological unit from which all tissues are derived, including both the fibrous and the cellular, we can at this point reach an interesting fact. The normal end of granules is to form cells and filamentous structures; but the granule can not reach this destiny unless it be vitalized, unless it be fitted for a higher evolution. Experiments seem to sustain the conclusion, that unless it be impressed by a nitrogenous phosphoid it can not proceed upon the requisite evolution—it

can not attain a higher organismal formula than an amorphous protoplasm. A drop of blood, placed upon the slide of a microscope of 1500 diameters, exhibits the tendency of the granules to arrange themselves into corpuscles; a slight trace of butyric acid robs them of this action, while a trace of the hypophosphite of ammonium appreciably increases the evolution into corpuscles. We reach two important facts right here. Whatever leads to butyric fermentation is antagonistic to the development of the granules into cells, and whatever arrests the development of these flesh germs will arrest tissue formation; but the explanation of the phenomena is also very suggestive: butyric acid will mask all the tests for phosphorus, and destroy all the physiological powers of its oxides. Roussin found in testing a fermented mass of sugar, milk, coffee and bread, for phosphorus, all reactions failed even with the Mitscherlischen apparatus. Free butyric acid also masked the test for phosphorus; for when this was neutralized by carbonate of potassium, testing in the Mitscherlischen apparatus afforded very evident proof of the presence of phosphorus.—(New Remedies, p. 352; April 1873.) The relation butyric acid sustains to the derangement of oleaginous digestion will be hereafter considered. In the experiment on the slide of the microscope, we notice the influence of the hypophosphite of ammonium in awakening corpuscular development by the granule, and we further note that butyric acid destroys this power of the granule to develope corpuscles, and also will annihilate the physiological and chemical action of all the phosphoids; consequently, knowing that hypophosphite of ammonium is a usual constituent of the blood, the inference is logical that cell development is inseparable from the influence of the hypophosphite of ammonium, and that whatever diminishes its quantity or neutralizes its influence will interfere with the development of cells, and consequently will load the blood with devitalized granules and leucocytes to die, shrink, harden, or caseate into tubercles. It would then appear that the hypophosphites are important constituents of nutrition, and may be very properly termed the organizers and tissue generators of the animal and vegetable kingdom, and the source of all the varied morphological phenomena illustrated in the growth of living bodies from the cerebrates and phosphates of the organism. "While, therefore, protoplasm is the vital and growing matter of all living bodies, whether animal or vegetable, its correlative protagon is that

which coördinates its organization into tissues, having special functions, and determines all its various morphological products; and as protagon is only another name for nervous matter, it seems to be one of the inferences of modern histology that morphology is a psychic process rather than a pure vital one. It has only been in studies of very recent date that the universality of protagon—the special substratum of the psychic activities associated with life—has been comparatively demonstrated. Its co-extent with protoplasm, in vegetable as well as in animal structures, is now one of the verities of science," and unravels some of the more complex and interwoven pathological mysteries which have heretofore defied all attempts to penetrate and interpret.

Many of the theories of Churchill find proof in the revelations of the microscope, and by chemical analysis. The high position assigned to these phosphoid compounds, as the very life of the nerve cell, as the food of the brain, as the essential medium by which the immaterial mind and soul are linked with physical structures, imparts to the consideration of these compounds a momentous interest, and justifies a brief *résumé* of the relation that cerebric acid sustains to vital, as well as to psychical processes. By a brief statement of some well-defined facts, the reader will be prepared better for assenting to others which have not been thoroughly verified. Although phosphorus as a metalloid is not a normal component of the human organism, the oxides and bases of the oxides are invariable components of the blood, brain, bones—in fact, every fluid and every solid of which it is composed. In the blood we find it as a cerebric or a tribasic hypophosphorous acid, a bibasic phosphoric acid with sodium for its base, an orthophosphoric acid with potassium and calcium for its bases, and in minute yet appreciable quantities the cerebrate of calcium and ammonium. The protean and varying types they present is one of the most mysterious and interesting of the phenomena manifested by the phosphoids, and suggests the exalted purposes they sustain in the various functions of the living body; and the more we study the subject the higher seems their mission, and grander their relation to life. But tracing the phosphoids still further, we find them to constitute an important element of the nerve masses. In the brain they exist in considerable amount. We find them in the formula of cerebrates or hypophosphates of calcium, magnesium, potassium, sodium, ammonium, manganese and iron, and phosphide

of nitrogen—a peculiar snowy-white phosphoid I have isolated with alcohol and bisulphide of carbon, and which is by far the nearest approach to the metalloid that has yet been discovered; in contact with water it is very speedily decomposed into cerebric acid or tribasic hypophosphorous acid. I believe it is the prototype of animal phosphoids—the correlative of the sulphur trace of the protoplasm; and that the phosphates, through electrical forces of the system, are decomposed into the nitrogenous phosphide, and from thence into hypophosphorous acid, either in basic combination with alkalies in the form of a glycus hypophosphite or an oleo hypophosphite. Both Dr. Samuel R. Percy and myself have, independent of each other, produced an artificial compound similar to the oleo-hypophosphite, and which is one of the most efficient nerve tonics in the realm of medicine; although comparatively inefficient, especially to protagon, as a chemical food, and consequently incapable of supplying the waste of the hypophosphites incident to phthisis and other cachexiæ. I am not quite positive as to the chemical character of the so-called oleo-hypophosphite. It does not evince any acid properties until it is brought in contact with water: may it not be that the formula of the phosphoid corresponds with what I call phosphide of nitrogen? The above are the phosphoids which relate immediately to brain function and determine the psychic entity of man. These are the especial medium by which the immaterial essence, mind, and the unanalyzed and mysterious principle, life, are blended with material organisms, by which the soul inhabits the tenement of clay; by which the brain thinks, reasons and feels; by which man can soar aloft to the infinite, and grasp the beauties of eternal life; or by which the morphological unit is developed from chyle, then into granules, on into cells, and still on into organs and structures. It is then the motor power of the soul, the connecting link between the finite and infinite—the fountain of all brain phenomena, as also the supervisor and director of organic functions. Without it there can be no psychic phenomena, and without it animal life can not endure; blending, as it does, in the sphere of its action the developing principle of all nerve influence, whether manifest in the philosopher's thought, the devout offering of the saint, the melting passion of the lover, the eloquence of the forum, or in performance of organic functions. It generates the power by which the heart beats, by which the stomach digests the albuminous constituents of our

food, by which the pancreatic juice is elaborated, and oleaginous principles of food are emulsified and prepared for further morphological changes.

An elementary constituent of the human organism endowed with these high purposes, being inseparable from life and health, can not do other than wield direct and decisive influence over the normality and abnormality of every vital phenomena. They must play foreground parts in the dramas of health and disease, their adequate supply and normal formula exalting and maintaining health, while their deficiency on the other, entailing vital deterioration and inducing the aberrations in the nutritive functions which eventuates in the production of feeble protoplasms; which imperfectly develope into cells of an aplastic character, and are so low in the scale of vital endowment that they can not reach a higher organization, but degenerate into tubercular corpuscles. Accepting the fact that the nerve cell is actuated by cerebric acid, and is dependent upon this acid for the display of all nerve function, and also possesses the vivifying power over the morphological unit—the granule—prompting its elaboration into corpuscles and determining the metamorphosis into tissue, the logical inference is, that if it be imperfectly or inadequately supplied, vital deterioration must ensue. The manner in which this result accrues is apposite to the subject. It brings us to the consideration of the inter-relation between the brain and the rest of the corporeal structure. Whatever produces a derangement upon one, will produce a corresponding derangement upon the other. The brain is the motor centre of animal life, the sympathetic ganglia being the repository of the nerve force by which organic functions are performed; the first emanating from the medulla oblongata; the second having no special origin, but consisting of succession of ganglia. Both are found in the same sheath with the carotid artery, and each determines, in an effectual manner, the influence transmitted by the other. The pneumogastric, it will be remembered, is a compound nerve; it combines both sensory and motor filaments, and consequently is capable of a dual action. Its filaments centering in the medulla oblongata, its branches distributed to the lungs and chyloporetic viscera, it sustains the relation of communicator between the nerve masses and the respiratory and nutritive functions. It informs the brain of the wants and conditions of the organs to which it is distributed, and communicates the motor power

involved in their operations. It, we may then say, is the great messenger of animal life—the telegraphic communicator between the body and the brain, the medium by which one is made cognizant of the conditions of the other. The pneumogastric, thus endowed with sovereign power over organic functions, ascends to the very acme of importance in the perpetnation of normal vital conditions and in the preservation of health; but it is only a messenger, rather a generator of nerve influence—a courier for the medulla oblongata. If the nerve influence be inadequate for normal function, inefficiency of function will be displayed in the organs to which it is distributed; abnormal influence will produce abnormal results; if the fountain of its power be deranged, aberrations will be evinced. Bernard's experiment in pricking the medulla oblongata is thus detailed by himself. "When we prick the mesian line of the fourth ventricle in the exact centre of the space between the origin of the auditory and pneumogastric nerves, we at the same time produce an exaggeration ot the hepatic (saccharine) and of the renal secretions; if the puncture be effected a little higher up, we very often produce an augmentation in the quantity of the urine, when this frequently becomes charged with albuminous matters; while if the puncture be below the indicated point the discharge of sugar is alone observed, and the urine remains turbid and scanty. If both the points be injured simultaneously, the animal's urine not only becomes abundant, but at the same time saccharine."

The results obtained in these experiments are very suggestive, and open up a wide field for thought and reflection.

If pricking the medulla oblongata at the different points will produce at will either albuminous or saccharine urine, the inference seems very logical that the secretory function is in a great measure controlled by the condition of the medulla oblongata. But the experiments here detailed indicate also a dependence of the nutritive function upon the nerve influence emanating from the medulla oblongata. If it be a modified influence, nutrition will be abnormal, and the modification of different portions of this vital knot, we infer from Bernard's experiment, produces different abnormalities. If albuminous and saccharine urine can thus be produced, may not an altered or inefficient influence produce deficient function of the pancreas, and in consequence the pancreatic fluid may be altered both in quantity and in quality, and thus fail to subserve its high purpose in digestion.

Clinical observation seems to sustain this view. One of the earliest indications of the pre-tubercular stage is a dislike to all oleaginous and fatty articles of food. If eaten, and they are very seldom relished, they usually induce pain and acid eructations.

It is an accepted fact of physiology, that it is only the nitro-albuminoid constituents of our food which are digested in the stomach, while the oleaginous pass through the stomach unchanged. In the duodenum they are subjected to the action of bile and pancreatic juice. These bring them to a minute subdivision, and fit them for their part in the morphological processes the food must undergo in its transition into blood, granules, cells, and vitalized structures. If the pancreatic fluid be inadequately supplied, this result is either arrested or inadequately attained, the oleaginous substances undergo butyric fermentation, butyric acid is formed—this further destroys the pancreatic secretion and augments the evil. Bennett, who very justly assigns a high importance to this lesion, thus describes it. With this derangement "there also exists an excess of acid in the alimentary canal, whereby the albuminous constituents of the food are rendered easily soluble, while the alkaline secretions of the saliva and of the pancreatic juice are more than neutralized and rendered incapable either of transforming the carbonaceous constituents of vegetable food into oil, or of so preparing fatty matters introduced into the system as will render them easily assimilable. Hence an increased amount of albumen enters the blood, as shown by chemical analysis, while fat used for caloric is largely supplied by the adipose tissue, causing the emaciation which characterizes the disease. In the meanwhile the lungs become liable to local congestion, leading to exudation of an albuminous character. This in its turn being deficient in the necessary proportion of fatty matter, *elementary molecules are not formed, so as to constitute nuclei capable of further development into cells; they remain, therefore, above, and constitute tubercular corpuscles.*" Admitting, with Bennett, that an oily emulsion must be formed to constitute a proper chyle to be converted into blood, and in pulmonary and other forms of tuberculosis this process is interfered with, this statement will scarcely satisfy the scientific physician; he will naturally inquire in what manner, form and extent, is the aberration. In pushing our investigation still further, several suggestive facts confront us. Hypophosphorous acid of the tribasic or organismal variety

is inseparable, as we have already seen, from cell evolution from the granule; without its vivifying influence, granules or nuclei are incapable of developing power; consequently, if hypophosphorous acid be inadequately supplied, there will be an inadequate supply of vitalized protoplasms, and an abundance of sickly ones of too low endowment to attain a high organization—these aggregating together form the granules or knots so accurately described by Virchow. And yet we have not reached an explicable solution of the determining cause—the absence of the hypophosphorous acid. By numerous experiments, I have determined it is ever present in chyme, and no doubt is inseparable from the transfer of chyme into chyle and the subsequent morphological conditions it must undergo. The experiment with the drop of blood on the slide of the microscope is here recalled, and the influence of the ammonium hypophosphite reconsidered. But how account for its deficiency, for the supply is abundant in our food? I think Roussin gives us an explanation, as already quoted. "It being desired to examine a fermented mass of sugar, milk, coffee and bread for phosphorus, all the reactions even, with the Mitscherlischen apparatus, Roussin, however, found that the free butyric acid masked the phosphorus; for when this was neutralized by potassium carbonate, testing in the Mitscherlischen apparatus afforded very evident proof of the presence of phosphorus." The above quotation from New Remedies (page 352), April, 1873, I think very fully clears up this point. Butyric acid not only masks all the tests for phosphorus and its oxides, but it interferes with their appropriation by the system, and thus lessens the amount of hypophosphorous and phosphoric acid, in their union with the alkaline salts, by holding them too firmly in solution, and preventing their appropriation by the animal organism. Here also, it may be remarked, that food deficient in quantity, or in the phosphoid constituents, is productive of tubercular disease. I am confident that very much of tuberculosis we find among the poor originates in the semi-starved state in which they exist in infancy, and the deficient or unnutritious food upon which they subsist in boyhood and early manhood, and the wealthy, by adopting diets abounding in saccharine and nitrogenous food, but which is deficient in the bases of the phosphorus oxides. Candies, sweetmeats, peas, lentils, beans, and similar aliments, in which the nutritive phosphoids are absent or exist only in small quantities, by not

supplying those indispensable constituents to nerve power and nutrition, may induce that condition of constitutional vulnerability which leads to tubercular disease. Dr. Hunt very truly says, "Starvation is a comparative term. We can starve muscle by withholding nitrogen; we can starve the fats of the body and destroy animal heat by withholding carbon. So, too, we can starve the brain by withholding phosphorus, and starve the blood by failing to supply it with those salts of lime, potash, soda and iron, which are essential to its healthy condition. We know when these are withheld the blood globule becomes pale and irregular in form, and starvation diseases are developed." The view here given is in full accord with my experiment on three dogs.

February 5th, 1870. Placed three curs in a kennel, in order to test the relation sustained by the phosphoid constituents of food to nutrition, as also an essentiality to life and health. All their food subjected to either alcohol and acetic acid, so as to isolate therefrom all their phosphoid constituents; abundance of the dephosphated food to be given, and the results noted.

February 12th. The dogs are very unhappy; walk whiningly around their kennel; eat an extraordinary quantity of food which does not seem to appease their appetite; they look haggard and emaciated.

February 15th. The dogs are ravenous with hunger, and evince still further emaciation. They are feeble, lay down and whine in a piteous manner.

February 18th. The dogs are much emaciated and crazy with hunger; gave them precipitated phosphate of lime with their food.

February 21st. The emaciation becoming dangerous; the dogs refuse to eat; every indication of extreme starvation; restored their natural food.

February 24th. The dogs are gaining strength and resuming their former health.

Experiment Number 2—May 10th, 1870. Placed a Spitzer dog in a kennel; will remove the phosphoid constituents from his food, but will give him an abundance of dephosphated food.

May 17th. The Spitzer is irritable, ravenously hungry, and has lost weight.

May 20th. The dog evinces all the phenomena of slow starvation—is becoming emaciated; will give him with his dephos-

phated food the phosphoid principles of wheat, extracted after Liebreich's method.

May 23d. The dog finds ample recompense in the phosphoid constituents of wheat, and is recovering.

In a similar experiment, I found that fresh lacto-phosphate of calcium compensated for the missing organic phosphates in an important degree.

In the above experiments I reach the following conclusions—

1st. Phosphoids sustain an important relation to nutrition; food is life-sustaining in proportion to the amount of the phosphoids it contains; and if deprived of them is incapable of sustaining animal life.

2d. Phosphoids manufactured in the laboratory do not compensate for the normal phosphoids; they are innutritious, non-assimilable, and are not appropriated and incorporated into animal structures.

3d. Phosphoids isolated from an animal or vegetable organism are in the formulæ which permit their assimilation and appropriation by the digestive and assimilable organs of animals, and can be used to supply those phosphoids in which the ordinary supply is unequal to the demand. Routh, of London, has arrived at similar results and entertains similar conclusions.

Dr. Tilbury Fox, the distinguished author of "Skin Diseases," and an authority of great weight, also adds his testimony to this view. He says: "There is something essentially special in the organized phosphates, in fact, that have been formed by passing through a living organism, as compared with those *artificially prepared.* It is not the *amount* but the *kind* exhibited which produces the good result."

M. Andre Sanson says "that the phosphates that are manufactured in the laboratory are not such as should be used, because their form does not allow of their digestion and assimilation."

It is thus determined, that without phosphoric acid there is no life—that without it the food we eat, however abundant in quantity, is incapable of sustaining the nutritive functions, and conducting those vital processes by which food is transformed into blood and the blood is elaborated into living structures. If tuberculosis be a disease in which the nutritive processes are interfered with, in which pancreatic deficieney constitutes an important if not a determining result; that in the pancreatic deficieney and imperfect emulsion of the oleaginous constituents of

the food the division is not sufficient for ready absorption; that in consequence butyric fermentation takes place, and the lesions so graphically pointed out by Bennett are produced—I think we reach an explicable explanation of very important conditions, in relation to the production of tubercle.

We find also the vivifying power of the hypophosphites in the evolution of cells from granules. We see that the morphological changes incident to the development of molecules into nuclei, and nuclei into cells, and cells into living tissues and organs, are dependent upon their influence and accomplished in a large degree through their instrumentality. If these be the lofty and exalted purpose of the phosphoids, if their presence be so essential to the vigor of body and brain, what serious lesions must result from their deficiency? Can we not agree with Dr. Eugene Wiley in his conclusions? Can we not say with him—"Can we not find a reason for believing that a deficiency of the hypophosphites also is attended with an imperfect and an inadequate development of granules into cells, and the cells into further elaboration, so as to take part in the morphological phenomena incident to life? The granules and leucocytes being of a devitalized character, are incapable of further organization, reach the stagnant pool in the apices of the lungs, and there precipitate and constitute the body we term tubercle." The uniformity of the beginning of tubercular deposit in the apices of the lungs, and the relatively passive condition of this portion of the lungs, in conditions attended with depressed nerve power, may be said to be settled points in medicine—facts without opponents. But why comes this lung quiescence? The motor power of the lungs is largely derived from the medulla oblongata, and it is in the medulla oblongata that the deficiency of the hypophosphites is the most evident. But it is in the nutritive processes we find the first lesion evinced—emaciated—and I think we have already reached a satisfactory reason of the manner in which the disintegrating processes come to exceed reparative ones: the devitalized condition of the protoplasms that are elaborated, and their incapacity for further organization, a consequence of deranged nerve influence emanating from the medulla oblongata and dependent upon nerve cells wanting in the physical attributes—the cerebrates—which awaken and maintain all psychical conditions. The experiments upon the dogs demonstrate beyond doubt that "without phosphoric acid there is no life." Food

void of phosphoids is void of nutrient power, incapable of supporting the human body in a state of health even for a short time. Nutrition can not proceed without phosphoric acid—the food we eat can not be vitalized without its presence. Its capacity for nutrition is in direct relation to the amount of phosphoids it contains. Wheat, the only single article of food capable of sustaining life, is replete in cerebrates and organic phosphates, as has been demonstrated by Liebreich, while it is not rich in nitrogenous constituents. The usually accepted view is, that there is a direct relation between the amount of nitrogenous elements contained in food and its nutrient power. But this view deserves reconsideration. Lentils, peas and beans, are far richer in nitrogenous constituents, and yet they far less nutritious than wheat, and incapable of supplying, as does wheat, all the constituents required in organic and animal functions. Liebig says: "We find in beans, lentils and peas, a larger per cent. of nitrogenous elements, but they are deficient in the component parts of the bones—phosphates of calcium and magnesium; they therefore satisfy the appetite without increasing the strength." The endorsement of the value of the formulæ of phosphorus by as high authority as Professor Liebig is truly significant. He, however, did not grasp the whole truth. The requirements of the system for phosphorus in its varied formulæ are not limited to the bones, but embrace every organ tissue and cell of the human organism. We have already considered the value of cerebric acid as the great source of psychic phenomena. At birth, in union with calcium and magnesium, it forms a constituent of bone, and at every period of life the vivifying principle of nutrition. At a later period we have phosphorus, and in adult life orthophosphoric acid in bone structure. Dr. Wiley, in the paper already quoted, says: "We further know that tubercles in themselves directly produce only a small part of the disintegrating processes which supervene in the course of tuberculosis. Inflammation, supervening as a secondary consequence of tuberculosis, leads to the exudation of inflammatory products. Unless these exudations be vitalized by the phosphates of calcium and sodium into plastic lymph, they, instead of being organized, as do other inflammatory products, or undergo absorption, degenerate into cheesy masses, and excite ulceration and lung disintegration. Similar results also accrue in dropsy. If there be an adequate amount of the phosphates in the system to vitalize

the exudations, they may glue serous membranes together, but if they be deficient, empyema may result. We find such a termination in tubercular meningitis, peritonitis and pleurisy." We here are brought to the consideration of a very important pathological point. In tubercular phthisis, lung disintegration is the immediate consequence of softening of the tubercle and caseous degeneration of inflammatory products; and, quoting high authority, we can also say that the danger of catarrhal pneumonia depends upon the large epithelial character of the cells, with which the alveoli become stuffed, the comparative invulnerable nature of the cell walls, and the absence of the more soluble elements of exudation, which being more perishable, readily undergo degeneration and liquefaction, and become absorbed or expectorated. Catarrhal cells, on the contrary, with little or no intercellular substance, tend to adhere together in permanent masses, which cannot escape but slowly degenerate in situ and give rise to secondary irritation of the alveolar walls. Here, also, we have an irritative hyperplasia of the glandular elements of the lungs, which, if it occurs in a certain intensity or endures for a sufficient time (both conditions varying with the constitutional peculiarities of the individual), instead of resolving, is prone to lead to caseous changes." From this view, the vitalizing influence of the phosphates, as well as the hypophosphates, ascend to the first importance in the prevention of tubercle and of obviating the dangers of being deposited, as also inflammatory products of either secondary or of catarrhal pneumonia.

Having thus demonstrated the immediate relation between tuberculosis and aberration in the nutritive functions, and alluded to some of the causes of which the nutritive derangements are but consequences, the phenomena observed in the lungs may now be noted. Almost always, if not always, simultaneous with the observed loss of flesh and strength there is modified respiration. The inspiration is less forcible than normal, the air does not enter the lung, and the lung does not expand so fully as formerly. The motion in the apices is very much subdued, and thoracic breathing is largely superseded by abdominal breathing. But when we examine the lungs by a stethescope, respiration is found to be not deranged but diminished, the vesicular murmur is uniform through the lung parenchyma, and percussion elicits nothing but natural resonance. We may have yet no structural change; no lesion of continuity

has yet been reached, although a lesion of function is presented. It is an expression of debility; the cerebellum and medulla oblongata are involved; they transmit an inadequate amount of nerve influence, and the thoracic muscles and nerves, inadequately supplied with the requisite stimuli, but feebly do their work; the air more easily penetrating to the base of the lungs, the upper portion is not fully expanded, the circulation is consequently languid, stagnation ensues, and sickly leucocytes clog up the lung structures, congregate together, and form tubercles. Thus local disease is added to the constitutional disorder, and that complex malady, tubercular pulmonary consumption, is produced. But another view may be taken which possesses a decided amount of plausibility. In the pre-tubercular stage the deficient inspiration is consequent upon defective or diminished nerve power. I say defective, because there is reason to believe that the nerve influence is modified, both in quantity and in character, and that upon the modification of character of the nerve influence, modifications, both physical and nutritive, may ensue. Smith very aptly says: "When, therefore, we find that there is a lessened degree of expansion of the chest, we may seek for its cause—without the lung, either in the degree of power by which the chest is expanded, and the expansibility of the walls of the chest; or within the lung, in the lessened capacity of the vesicles to expand; or in the increased resistance of their structures to the act of expansion. And further, in reference to resistance to expansion in a given time with a certain degree of freedom, we must recollect that the tubular structure may play an important part. The capacity of tubes to transmit fluids in a given time varies with the squares of their diameters, and therefore, with the immense number of tubular ramifications in the lungs, each one becoming smaller, there is an increasing resistance to the current of the air through them, and increase of time or of force is required to convey the air as the tubes become smaller. It is therefore a question worthy of close observation, if there is in all lungs a sufficient area in the small tubes to allow the air to pass with the required freedom under the influence of a given power; and this would be especially valuable in those cases in which there is such an impediment to respiration from birth, that it is perceptible in ordinary respiration from birth, that is perceptible in ordinary respiration or at least with a small amount of exertion, and requires an inspi-

ratory force beyond that which men ordinarily employ. It is also believed that the circular fibres which the small bronchial tubes possess have the power to further contract the diameter of the tubes, and thus to offer another mode (and in bronchitis an effectual mode) of resistance to the expansion of the lungs." May it not be, that deranged nerve influence induces a contraction of the circular fibres of the small bronchial tubes, and thus prevents full expansion of the lungs; that owing to peculiarity of anatomical structure the air does not penetrate to the apices, and consequently there is a quiescence in the pulmonary circulation, resulting from the diminished calibre, and the condition favorable for destruction of normal blastema, and as well as the deposit of sickly leucocytes, is induced. In fact it seems to be a very plausible conclusion, that at this epoch the nerve influence transmitted is not only diminished in amount but is deranged in character, and thus modifies the respiratory function. By diminishing the calibre of the circular fibres, the free ingress of air to the air vesicles is obstructed and the respiratory functions modified. But the same cause which produces this effect may produce another consequence which perhaps is simultaneous with those already mentioned. Cell development and cell appropriation are materially influenced by the nervous system. Deranged nerve influence will derange the nutrition of the parts to which the nerve is distributed. If the cerebellum and the medulla oblongata be deficient in the evolution of the nerve influence they generate in their normal condition, the influence they exert upon the functions, and even the structural integrity of the parts to which the pneumogastric is distributed, will be modified. The manner and extent to which this is manifest upon the abdominal viscera have already received a passing notice. If deranged nerve influence will produce saccharine, and albuminous urine, or so modify the functions of the pancreas as to interfere with the elaboration of an adequate amount of pancreatic fluid, it is evident that the lungs which are nearer the origin of the nerve influence, may be equally impressed. There is but little doubt that the deranged nerve influence deranges the cell life of the lung parenchyma. The vital power of the tissue deteriorates below the healthy standard. It has less capacity for resisting foreign influences; more prone than normal lung tissue to take on retrograde movements; more subject to congestions; more disposed to become hepatized, and less

capable of resolution; consequently there is an inherent disposition of the lung to proceed to tyromatous degeneration, ulceration, and lung disintegration; but here we are describing consequences rather than the initial cause of the lung lesion. To reach the initial cause we must ascend to the medulla oblongata and cerebellum, the source from which the respiratory and nutritive functions derive their nerve power, and in attempting to interpret nerve phenomena we derive valuable suggestions as to lesions in one part of the nerve mass from what we already know of lesions in another part. A study of the brain lesions we witness in dementia and in cerebral paresis, and some other brain lesions furnish data from which the pathologist can draw very obvious conclusions. Dr. Edward C. Mann, in an autopsy of a German who was the victim of chronic mania associated with epilepsy, found "in the large nerve cells of the deeper layers of the convolutions of the brain, which I consider analogous in their functional activities to the ganglion cells of the anterior cornua of the cord, was seen pigmentation, atrophy, and degeneration. On examination of the cells of the grey matter of the corpora striata, there was found degeneration and atrophy." Dr. Mann further attributes, and I think justly, the lesions of chronic insanity to depend upon as the ultimate cause, defect in nutrition. Defect in cell nutrition seems to be deeply concerned in those events—the brain cell loses its power of appropriating its pabulum for the maintenance of its individual life, and it perishes from starvation. An important fact of cell nutrition is here recalled—without hypophosphorous acid the transition of the granule into a leucocyte is retarded—corpuscular evolution being inseparable from this acid and rapidly promoted by its presence, as demonstrated on the slide of the microscope. I may be mistaken, but I believe with Dr. Mann, that all pathological phenomena discovered in the brains of persons dying insane all have for their basis, interference with the due nutrition, growth and renovation of the nerve cell, which by interrupting the nutrition, stimulation and repose of the brain, essential to mental health, results in the impress of a pathological state in the brain and disordered mental function. This cell integrity seems to depend upon an essentially-nutrition, and nutrition is dependent upon either a supply of pabulum or the power to appropriate by imbibition and assimilation of the pabulum to

its nutrition. If in either case or from either cause nutrition is arrested, disordered brain function must ensue. Normal nerve influence is inseparable from normal nerve cell nutrition, and normal cell nutrition can only be attained through the brain acid—cerebric acid, in one or other of various formula either in its association with the brain fats as an oleo-hypophospite, a glycero-hypophosphite, or in association with the alkaline and mineral bases. Nerve cell life and activity are inseparable from the presence of protagon. Without it, as Liebig has truly said, there can be no thought, no psychic phenomena; all the vital processes resulting from brain and nerve influence can not endure. If it be not adequately supplied to the nerve cell, nerve integrity is lost, cell evolution can not continue, and vital deterioration is the consequence. This has been well determined in many brain maladies. Routh, in a masterly paper read before the London Medical Society, said: "The symptoms of mental decay resemble the gradual changes that come over old people, and yet are very similar also to those induced by venereal excesses in both sexes, except that in these there are symptoms of spermatorrhœa or leucorrhœa which are absent in cases suffering from overwork. In both cases the tendency is to softening of the brain and insanity." He said there was reason to believe that the immediate cause of these symptoms was, deficiency of phosphorus in the brain, and endeavored to prove this by considering seriatim the following points.

First. It is proved chemically that a man grows older and mentally weaker, or becomes idiotic, as the brain contains less phosphorus; this was shown by the analysis of Heuter.

Second. The solidity of the brain depended upon protagon, a phosphoric compound, and *those foods which were richest* in phosphorus were found by experience to renovate most speedily weakened brain power, such as shell fish and fish generally. (The Doctor, December 1st, 1872.)

I may here remark, that in 1857 I had analyzed the brain, blood and nerve structures of those dead with phthisis and insanity, and the evidences I reached are fully verified by Drs. Mann and Routh. In insanity the convolutions of the cerebrum first washed with hot anhydrous alcohol, then with ether, then again alcohol, and the phosphoid principles thus held in solution by the alcohol precipitated, there was a uniform diminution in the relative amount thus obtained, to what was found in the

brain of one dead from acute disease; while in phthisis there was no uniform variation in the cerebrum, especially in the convolutions of the superior lobes, but in the medulla oblongata and cerebellum, as also in the blood, there was a marked depreciation of the amount of phosphoids obtained in the above manner. In twenty chemical analyses made by me in 1857 and 1858, this was observed: in more than half the number the medulla oblongata, which in a healthy man contains about one scruple of kephaline (cerebric acid and cerebrates), did not yield over six grains; in the cerebellum the deficiency was equally as obvious, and in the blood the same result was witnessed. These experiments I believe antedate the researches of every one else in the pathological chemistry of the brain. Churchill, it is true, had previously arrived at similar conclusions by theorizing, but not by chemical knowledge. German histologists, it is true, had previously isolated cerebric acid, leutherine, neuric acid, cerebrin and other brain principles, but I believe the title of priority of having studied the chemistry of the brain with the purpose of determining the relation of its phosphorus compounds to pathological conditions belongs to me; also the originality in forming these phosphoids into a medicinal agent for the remedying diseases eventuating in their deficiency. Dr. Percy, I believe, "entered according to act of Congress his Vitalized Phosphates in 1874" Drs. Wiley, James E. Young, Wm. F. Woodworth, and several other physicians of this city, used my Glycerite of Kephaline in 1872. But this patent medicine is unlike mine in form, appearance, odor, taste, medicinal properties, and is also accompanied with a measure for its administration, while neither of the phosphoids I have used are secret nostrums or proprietary preparations; consequently, being of more recent birth, being entered according to an act of Congress, being a solid, while the preparations I have made are clear liquids, it would be false to declare this nostrum to be a rival, claiming pharmaceutical equality with brain phosphoids formed into liquids by my formula for the use of physicians only.

To Liebreich belongs the honor of first describing protagon, and the process for its isolation; and from his description much of the knowledge possessed as to these phosphoids is due. Liebreich's process is—reduce the brain to pulp, and act upon this with water and ether 0° C. From the remaining substance, extract the protagon by 85 per cent. alcohol. Cerebric acid may

be thus obtained. Cut the brain substance into thin slices, act upon it with boiling alcohol (as nearly anhydrous as can be obtained by the bladder process) to remove water, press it, digest with cold and then with warm ether, distil off the ether and digest it with much more ether. We now have cerebrates of sodium, calcium, potassium and phosphate of lime. Digest it in absolute boiling alcohol, acidulated with sulphuric acid. We thus obtain an alcohol solution of cerebric acid; when this is evaporated, the acid is deposited as a white crystalline substance. The above is Freney's process. The process I follow is more complex, exceedingly disagreeable to follow, using a mixture of the ter-chloride and bi-sulphide of carbon with the alcohol. With Liebreich's formula, any one can verify for himself my statement of the relatively small amount of protagon found at the base of the brain—cerebellum and medulla oblongata—of those dead with tubercular disease, the deficiency of protagon in the convolutions of those dead with chronic insanity, and the same lesion in the spinal cord in progressive paresis. Although apparently irrelevant to the subject, several statements appertaining to pathological conditions in the kidneys, resulting from, or associated with brain disease, are very suggestive. Francis Gerry Fairfield (*Phrenological Journal*, page 421, December, 1876), alluding to Bernard's experiments which I have already quoted in this paper, says: "Since then it has been definitely established that diabetes with its augmentation of sugar is symptomatic of progressive degeneration of the posterior portion of the brain, the gray matter of the fourth ventricle, the olivary bodies, the tubercula quadrigemina and the cerebellum being the special centres attacked. It is but recently that I have had an opportunity of observing an autopsy of a patient dead with Bright's disease that possessed an interesting history. The patient was an Englishman by birth, had wasted a large patrimony, led rather a wild life, and when about fifty years of age married a very vigorous and voluptuous woman. He began taking tincture of phosphorus about a year before his death, to remedy defect in sexual activity. Four months before his death he detected the kidney trouble, determined its character (being himself an irregular practitioner), and placed himself under the care of an irregular practitioner, who gave him sulphur and molasses. A week before his death he sent for me. The kidney presented the usual phenomena witnessed in the fatty type of

nephritic albuminuria, but upon examining the brain, that just above the centre of the space between the origin of the auditory and pneumogastric in the mesial line of the fourth ventricle, I found that the brain had lost its structural integrity, was softened and pultaceous, and the medulla and all the abnormal brain substance evinced a decided loss of protagon. I regard nephritic albuminuria as an expression of tuberculous diathesis; but why the local expression should in one case be found in the kidney, in another in the mesenteric glands, another in the lungs, or lastly, in the brain, will be left for future consideration. The entire assemblage of the phenomena of tuberculosis most assuredly places it among the cachexiæ, declares it to be the consequence of mal-nutrition, and mal-nutrition to be the expression of depreciated vital force, imperfectly elaborated life evolution; and all research into the mysteries of life and death prove conclusively that vital force and life evolution are but chemical phenomena; that they are set in motion and perpetuated in their various powers by the ubiquitous and ever essential kephaline—the active phosphoid of protagon.

Sexual excesses, whether naturally or unnaturally performed, are well recognized as exerting a very disastrous influence upon vital conditions, the moral or psychical nature of man, or upon his intellectual capacity. Horace, who perhaps caught the idea from others, very truly informs us that distinction is only obtained by avoidance of women and wine. The Catholic Church practically applies this idea in enjoining a life of celibacy upon their priests. In theory there is much truth in it, although I believe moderate sexual gratification is both conducive to health and morals, while the sad tale of sexual depravity is told on every side. A large percentage of the insane are insane from the drain of protagon from the brain by excessive sexual indulgence, or by masturbation, and the records of all insane asylums declare most unequivocally that the almost invariable rule is, that all persons insane from sexual abuse, thereby entailing a heavy drain of semen, die from tubercular disease. In endeavoring to trace the connection between loss of protagon and insanity as well as tuberculosis, we here reach a very important chemical fact. Semen is especially rich in oleo-hypophosphite, as also the cerebrates of calcium and sodium, and the vivifying power of semen seems to sustain a direct proportion to the amount it con-

tains of these. During the last six months, by chemical examination, I have proved this to be so. Men in whom there is an abundance of the cerebrates possess sexual vigor, those in whom there is scarcely a trace being impotent. Whatever produces a drain of the cerebrates must produce the consequences growing out of the deficiency. These cerebrates being the very essentiality of brain integrity, their excessive loss impairs brain integrity—induces insanity. But when we take into consideration the general loss to the system, we may well anticipate other lesions emanating from the same source. As a rule, those insane from masturbation are to a greater or less degree paraplegic; the medulla oblongata also shares in the loss and consequences; the organs to which the eighth pair of nerves are distributed share in the constitutional disorder, and the lesions are expressed in the nutritive and respiratory functions. Cell development is arrested, the granule does not properly reach the corpuscular form, its organizing power is impaired, and it dies and its debris forms tubercles. While this result is so uniform in those insane from sexual exhaustion, it is a very suggestive fact that those insane from other causes are remarkably free from phthisis, notwithstanding the hygienic surroundings are very conducive to tubercular disease—indicating that in the dethronement of reason there is something which acts as a prophylaxis; and yet in dementia and chronic insanity paralysis is not uncommon, and tuberculosis does supervene, even under the very best hygienic influence. As we progress in our knowledge of the nervous system, and explore the pathological conditions its lesions produce, very much that has heretofore been mysterious and unsolved will become among the simplest and best elucidated facts in medicine. Even already the brain and nerve origin of tuberculosis has been strongly suggested by the writings of Jewel, Mann, Hammond, Fairfield, and other students of the nervous system. My paper, "Tabes Pulmonum," refused by the Editor of the *American Journal of Medical Sciences* in 1871, which separated phthisis into tubercular, non-tubercular, and sclerotic phthisis, and regarding tubercular phthisis as the consequence of deficiency of ptotagon, does not seem quite so "visionary and improbable" now as then. The divisions of phthisis thus named are now almost accepted, and ere long deficiency of protagon, as a prime factor in phthisis, will be regarded as a very probable idea by

the thinking men of the profession. Every contribution to the subject leads us in that direction—every new fact disclosed either in the pathology of tuberculosis or of the brain leads us nearer to this conclusion.

(To be continued.)

CASE OF POISONING BY THE ESSENTIAL OILS OF SAVINE, PENNYROYAL, AND TANSY.

BY W. H. WATKINS, M.D.

(Read before the N. O. Medical and Surgical Association.)

On March 30th, at 10½ p. m., I was called to see Mrs. ——, aged 26 years, and the mother of three children. On my way to the house the husband informed me that his wife had failed to have her menses on the 25th inst., and to bring them on had taken an unknown quantity of the essential oils of tansy, savine and pennyroyal. She had taken these oils about one hour and a half before he called for me. He stated that he had retired to bed, and about ten o'clock was called up by his wife, who complained of very peculiar sensations and was very much frightened. On reaching the house I found Mrs. —— sitting in a rocking chair; she was very much excited; pulse weak and frequent; skin pallid, and bathed in profuse perspiration. On questioning her, she said the unpleasant sensations were, ringing in her ears and a feeling of stiffness in her back and limbs. At this moment she lost consciousness, and was seized with a violent clonic convulsion, permanent opisthotonus, and general twitching of muscles of face and extremities. Having carried her to bed, the paroxysm soon passed off and she regained consciousness. I noticed at this time that her breath was laden with the aromatic smell of the oils. On questioning her, she told me that she took about twenty drops of the oil of tansy and fifteen drops of each of the other oils. She complained of ringing in her ears, and a feeling as though a bandage was applied to her eyes. Pupils of the eyes dilated; pulse 120; temperature normal; respiration sighing. An emetic of ipecac and tartar emetic by this time had been procured. It was given, but the stomach did not respond for fully twenty minutes. The matter vomited presented

evidences of the oils, being very aromatic, the exhalations being irritating to the eyes. Vomiting was kept up by the administration of mustard and hot water. Her prostrated condition was increased by the vomiting. She still complained of the noises in her ears and tight feeling about the eyes; felt a tension of the muscles. About fifteen minutes after vomiting she again lost consciousness, but had no convulsion. 30 grains of bromide of potassium was given combined with 15 grains of the hydrate of chloral. Her pulse was now 100, and her temperature was 99½°; in an hour her temperature was 100°, and her pulse 95. She still complained of the same feelings in ears and eyes, but in a less degree. I then left her. The next morning her temperature and pulse were normal, but she was greatly prostrated.

The U. S. Dispensatory says of oil of tansy—"A fatal case of poisoning with half an ounce of oil of tansy is recorded in the *Medical Magazine* for November, 1834. Frequent and violent clonic spasms were experienced, with much disturbance of respiration; and the action of the heart gradually became weaker till death took place from its entire suspension. No inflammation of stomach or bowels was discovered upon dissection. (*Am. Jour. of Med. Sci.*, vol. xvi, page 256.) Two other fatal cases have since been recorded—one in which more than a fluid ounce was taken, the other only a fluid drachm. In both death followed speedily, preceded by coma and violent convulsions. The dose of the oil is stated to be from 2 to 10 drops."

The U. S. Dispensary gives as the dose of oil of pennyroyal from two to ten drops.

Of oil of savine it says—

"It has been much employed in amenorrhœa, and with a view to produce abortion, and in some instances with fatal effects. The dose is from two to five drops."

I have since examined the vials from which the oils were taken. They were of the size and shape used by homœopathic physicians. The one containing the oil of tansy was about half full. Those containing the other oils were two-thirds full. The labels on the bottles were written by hand, and did not contain the name of the druggist dispensing them. I was informed who the druggist was from whom they were obtained, and know him to be enjoying great popularity with the medical profession and the general public.

CURRENT MEDICAL LITERATURE.

CINCHONA ALKALOIDS AND THEIR SALTS.

By Ferdinand King, M.D , Ph.G., Atlanta, Ga.

Owing to the scarcity and high price of quinine, physicians have for some time past been experimenting with quite a number of alkaloids of various kinds, in the hope of finding a good substitute for that time honored and well known remedial agent. These experiments and investigations, which have been more vigorously prosecuted in the western and southern states than elsewhere, have not been confined exclusively to the small group of alkaloids derived from cinchona, but have embraced every other remedy calculated to produce an anti-periodic or febrifuge effect upon the animal economy. In searching for this much coveted substitute, our profession has been sadly imposed upon by large numbers of silver-tongued agents sent out by unscrupulous, enterprising manufacturers, who by their smiles and graces induce some leading physicians to give their preparations a trial, thus creating a temporary demand for them, thereby enriching the originators and making consumers poorer and very little wiser. In my humble judgment we lose ground every time we deviate from the old and long beaten track. The scientific investigator so far has been unable to find anything possessing the same anti-periodic properties as cinchona and its preparations. Some new discoveries have for a time enjoyed considerable reputation, but after thorough tests have gone down before cinchona and its allies, never to rise again.

Sometimes we have unpleasant symptoms, such as urticaria, following the administration of quinine, which I am sure depends upon some idiosyncrasy of the patient, just as catarrhal symptoms not unfrequently result from the use of iodide of potassium. These consequences, observable in such a small per cent. of patients where valuable therapeutic agents are administered, should not, I am sure, prejudice us against their general use. The same objections urged against the use of quinine under certain pathological conditions can with equal propriety be applied to the other alkaloids of cinchona-quinidia, cinchonidia, quinidia and cinchonia. These unpleasant effects are observable when we administer any of the alkaloids just enumerated, in large doses. Take, for example, sulphate of cinchonida, which is perfectly worthless as an anti-periodic, unless we give at least three times as much of it at a dose as we do of the quinine. When given in these large doses we find all the symptoms of true "quinenism" present—such as cerebral disturbance

evinced by a feeling of tightness in the head, ringing in the ears, difficulty of hearing, etc. It seems that these effects must be secured before the system of our patient can be considered proof against repeated malarial paroxysms. As it requires three or four times as much sulphate of cinchonidia, for example, to secure this "quinism" as it does of the sulphate of quinine, I think we practice poor economy in administering the former in preference to the latter.

I do not think the *modus operandi* by which the various alkaloids of cinchona relieve malarial fevers or influences is really understood by a large majority of our profession, but that it is too often hypothetical in the minds of our average practitioner. That some, and perhaps many, of these hypotheses are correct, I do not pretend to deny. We all know that the blood undergoes the most remarkable changes in patients suffering from the effects of malarial poison. There is a very perceptible increase in the quantity of the plasma or alkaline fluid, while there is a corresponding decrease in the red globules or corpuscles. This condition is plainly evinced by the characteristic paleness always observable in patients suffering from malarial anæmia. Scientific and intelligent physicians will readily agree that it is necessary to restore the blood to its normal condition before we can give back to our patient his wonted health. We should therefore examine his blood, and learn what elements are wanting, before we attempt to administer remedies. We should then give him such medicinal agents as are calculated to replace the lost elements and restore the blood to its original healthy condition. We find nothing in our materia medica that meets all the indications in these cases as completely as the cinchona or Peruvian bark itself, but owing to its bulk and the length of time required for its assimilation, it is objectionable. The ingenuity of the intelligent pharmacist has overcome these objections by giving us all the active principles of the Peruvian bark in a combination very appropriately called *cincho-quinine*. In this combination we find the nearest approach to the original substance, Peruvian bark, that modern science has yet attained. It is, as before stated, a combination of all the active medicinal principles of the best calisaya bark; and, after the long and thorough testing it has had, it stands unrivalled as a prompt, safe, and uniformly reliable anti-periodic, possessing all the advantages, with none of the disadvantages, of sulphate of quinine, or any of the single alkaloids of the cinchona. It is entirely free from such external agents as sugar, liquorice, starch, magnesia, etc. It is is wholly composed of the bark alkaloids, quinia, cinchonia, quinidia, cinchonidia, and the other alkaloidal principles which have not been distinctly isolated, and the precise nature of which is not well understood. Analyses by disinterested chemists attest their presence. In its preparation all the active tonic and febrifuge principles of the bark are secured without the inert bulky lignin, gum, tannic acid, etc. It exerts

the full therapeutic influence of sulphate of quinia, in the *same dose*, without oppressing the stomach or creating nausea. It seldom produces cerebral distress, as quinine does, and I have found it to produce much less constitutional disturbance than the latter agent.

During my experience as a country doctor, in the swamps of Alabama, I found it far superior to any other preparation I ever used in the treatment of the chronic forms of chills found there. I could not cure my patients with the quinine uncombined, as it simply acted as a cerebral stimulant, and didn't seem to improve the debilitated condition of the sufferer, as did cincho-quinine. I have never found any difficulty in getting the most delicate child or squeamish female to swallow the cincho, as it is almost tasteless and does not leave that clinging, lasting, bitter taste peculiar to the sulphate.

One of the main points I desire to impress upon the minds of those who read this article is, that cincho-quinine is not sulphate of quinine; it is not sulphate of cinchonidia, but it is all the alkaloids in *combination*, and it is this composition, this representation of all the medicinal principles found in Peruvian bark that gives it the value claimed for it over and above all other preparations, or any one of the alkaloids.

It is generally believed by a large number of old practitioners that the reason why larger quantities of quinine are required to combat malarial diseases than formerly, is not because of the impurity of the sulphate of quinine, but because it is too purely and solely a sulphate lacking the other useful and important principles above referred to, and that are so surely calculated to successfully overcome the various unfavorable pathological conditions that invariably present themselves in patients suffering from exposure to malarial or miasmatic influences.

Cincho-quinine is not explosive in its action, as in the *combination* the amount of nitrogen always present in most alkaloids is greatly diminished by uniting the several cinchonia alkaloids, hence less cerebral feelings and less constitutional disturbance follow its administration than are usually attendant upon the use of the uncombined alkaloids. The same rules, as I before stated, are to be observed with regard to the use of the cincho-quinine that govern the use of the sulphate. It is given in the same doses and where the *siege* treatment is indicated, it commends itself to the special attention of the entire medical profession.

Cincho-quinine has been thoroughly tested by many of the most learned teachers and practitioners of medicine in the north and west, and in some sections of the southern States, giving in every instance the most satisfactory results. Indeed, I have heard of it being abandoned in no instance, while sulphate of cinchonidia and other cheap alkaloids have gone into total disuse.

Not only should the real value of cincho-quinine recommend

the article to our profession, but its low price is another inducement for us to prescribe it. It is less costly than the sulphate, while the dose is the same. The price of it fluctuates with the rise and fall of the Peruvian bark just as in the case of the sulphate, still it is at times furnished at about half the cost of the latter article. Some may ask why the cincho-quinine has not come into more general use in the south. To such I would say, it is from the fact that it has been but recently offered to the profession, and has not been so extensively advertised as sulphate cinchonidia and some of the other more worthless articles that have been forced into the offices of a large number of our physicians. Cincho-quinine stands upon its own merits, and will come into more general use at an early day. I know personally, at this comparatively early day, several physicians in our own State who use it altogether in preference to quinine or any of the single alkaloids. It is not pushed upon our profession by an army of smiling agents that infest our country, singing songs and tipping social glasses with the liberal members of our medical societies at their local or State meetings. Its manufacturers claim no special praise for giving us this valuable and economical remedy. And here I would state—rather parenthetically—that "we are under lasting obligations" to *no living firm* of manufacturing chemists for the cinchona alkaloids, as they were all discovered even prior to 1835. The praise for scientific discoveries should, in my humble judgment, be awarded the discoverer, and not him who profits and grows rich by it.—*Atlanta Medical and Surgical Journal.*

A CASE OF OVARIAN TUMOR IN A CHILD TWELVE YEARS OF AGE.

By Theodore A. McGraw, M.D.,

Professor of Surgery in Detroit Medical College.

The following case is of interest on account of the youth of the patient:

Lizzie G—, aged twelve years, was brought to me from Au Sable, Mich., by her parents, for examination on Aug. 8th, 1876. Three months before, it had been first noticed that her abdomen was unusually large. The enlargement rapidly increased, and her symptoms became alarming. She had suffered no pain except from distension, but had a constant diarrhœa, and was short of breath. Her urine was scanty, contained no albumen, and showed a deposit of urates. She perspired freely, and had the thin peculiar countenance of patients with ovarian disease.

Physical examination showed an immense barrel-shaped enlargement of the abdomen, thirty-four inches in circumference at the navel, bulging ribs, and universal abdominal fluctuation. The percussion sounds were peculiar, and as yet, to my mind

inexplicable. When sitting up, the whole abdomen, except the right lumbar region, gave a dull sound. When lying down, the epigastric and both hypochondriac regions, as well as the right lumbar region, were tympanitic. There was no well defined tumor which could be distinguished by the touch from the ascitic fluid around it. The child was altogether undeveloped sexually, and had never menstruated. It was impossible to examine her per vaginum, and the rectal examination yielded only negative results. The rapidity of growth made me fear malignant disease, more especially as the patient was very emaciated and quite weak. I tapped her and obtained about three gallons of bloody serum, which revealed, under the microscope—no granular corpuscles such as are supposed to be invariably present in ovarian tumors—but red blood corpuscles alone. I could not detect a single other organic element, although I searched for them with great care, for purposes of diagnosis.

After tapping, the region of dulness became limited to the lower central part of the abdomen, but no tumor could be distinguished by manipulation. She was temporarily relieved, and was removed to Royal Oak, twelve miles from Detroit. She began, however, immediately to grow in size, and in four weeks time measured thirty-six inches around the navel.

Assisted by Dr. C. M. Raynale, of Birmingham, and Drs. Chapaton, Hawes and Robertson, of Detroit, I proceeded on September 12th to remove the tumor. I found after incising the peritoneum that the reaccumulation of fluid was largely ascitic, a large wash tub scarcely sufficing to hold the fluid which escaped. The tumor was seen as large as the head of a new-born child, lying upon the back bone. When grasped, the bloody serum which it contained spouted out of the hole previously made by the trocar. It consisted of a very thin sac, and contents such as I have described. It broke in two as I seized it, but was extracted without difficulty, and the pedicle was clamped. After sponging out the peritoneal cavity, I found that the dependent portions of the peritoneum were stained, and mottled with blood which could not be wiped nor scraped off. It was evident that the fluid, oozing from the sac, had deposited its contained blood corpuscles where they would naturally be drawn by gravity, and that they had there adhered and grown fast to the surface on which they lay. A drainage tube was inserted into the lower part of the wound, and the little patient, after being properly bandaged, put to bed. She made a good recovery without a single drawback, and is now well.—*Toledo Med. and Surg. Journ.*

INHALATION OF PHENIC ACID IN CATARRHAL AFFECTIONS OF THE RESPIRATORY ORGANS.

By Moritz.

In a French Journal the following *résumé* appears, translated

from the Russian. The author noticed that the exhibition of phenic acid in vapor diminishes the frequency of bronchial catarrh, and one of his colleagues, Assendelfft, made the same observation. Moritz therefore tried its use on two young children suffering with hooping-cough, and in a few days they were well. He afterwards tried it in a case of measles, the cough diminished and the patient was much calmer at night. In two surgical cases, with tendency to pulmonary congestion, the cough disappeared completely. On the contrary, his treatment proved deleterious in two phthisical patients on whom it was tried.—*Maryland Medical Journal.*

THE TREATMENT OF TAPEWORM.

Professor Mosler has been advocating a system of treating tapeworm which, according to a Swiss medical journal, has been attended with remarkable success. Its chief characteristic is the injection of large quantities of warm water in the colon, after the administration of the athelmintic. The diet is first regulated, food being given which is supposed to be distasteful to the tapeworm—bilberry tea, herrings, sour cucumbers, salted meats. The intestine having been, as far as possible, emptied by laxatives, a dose of the extract of pomegranate bark is administered, prepared from the fresh bark, and then a large quantity of warm water is injected into the rectum. The theory is that the worm, previously brought down into the colon, is prevented by the water from attaching itself to the wall, and is brought away by the liquid on its escape. It is asserted that in every case in which this treatment was adopted the head of the worm was removed.—*London Lancet.*

HYDROBROMIC ACID IN TINNITUS AURIUM.

The following case, selected out of several, of the successful treatment of long standing tinnitus aurium by hydrobromic acid, well illustrates the principles laid down by Dr. Woakes in the *Journal* of June 23d. It will be seen that in this case the tinnitus was of the knocking or pulsating kind, and therefore probably due to a congested condition of the labyrinthine blood-vessels. In other cases, in which the tinnitus was of a continuous roaring or rushing character, the administration of hydrobromic acid had no beneficial effect.

I. S., aged 34, applied at the Central London Throat and Ear Hospital on May 11th. He had been deaf and had loud "thumping" noises in the head for twelve years. There was no history of otorrhœa. On examination, the meatus was fairly healthy;

hearing power was extremely defective; voice was only heard when much raised, and the watch not at all; the tuning-fork was heard on the mastoid process. The tinnitus was complained of as the most distressing symptom. He was ordered benzole inhalations, and hydrobromic acid in fifteen minim doses three times daily. On June 4th he reported that the noise had quite stopped, and said that his ears "felt much clearer and more healthy since taking the medicine." June 11th there was no return of tinnitus.—*British Medical Journal*, July 7th.

DIABETES MILLITUS.

In the June number of the *Detroit Medical Journal*, Dr. T. C. Smith, of Middleport, O., reports two interesting cases of recovery from the above disease. They were both treated with sulphide of calcium—the first with two grains every four hours, and the second with four grains three or four times a day; Pavy's antidiabetic diet, which is as follows, being strictly adhered to. "Butcher's meat of all kinds except liver; ham, bacon, or other smoked, salted, dried or cured meats; poultry, game, shell-fish and fish of all kinds, fresh, salted or cured; animal soups, broths, beef-tea, not thickened with flour; the almond, bran or gluten substitute for ordinary bread; eggs dressed in any way; cheese, cream-cheese, butter, cream, greens, spinach, turnip tops, turnips,* French beans,* Brussels sprouts,* cauliflowers,* broccoli,* cabbage,* asparagus,* sea-kale,* vegetable marrow,* mushrooms, water-cress, mustard and cress, cucumbers, lettuce, endive, radishes, celery, vinegar, pickles, jelly, flavored but not sweetened; savory jelly, blancmange, made with cream and not milk; custard without sugar; nuts of all kinds except chestnuts; olives. The patient may drink tea, coffee, cocoa from nibs, dry sherry, claret, burgundy, hock, brandy, and spirits not sweetened, soda water and bitter ale in moderate quantity; milk sparingly. Those marked with an asterisk (*) to be eaten only in moderation and boiled in a large quantity of water. Soon after the institution of this treatment, a diminution in both the amount of urine and the sugar which it contained was observable, and his increase of flesh for the first fifteen days was an average of one pound per day. Sugar was detected in his urine in progressively decreasing quantities until December 14th, twenty-three days after the commencement of the treatment, when it contained a trace, which persisted for two weeks longer. The quantity of urine diminished from nine pints to one and a half and two pints by December 15th, and never permanently increased. The specific gravity, from 1026 to 1036 after a month's treatment, was reduced to 1020 as an average, sometimes above and sometimes below. The diet remained unchanged till February 15th, 1877, when a gradual resumption of an amyloceous diet was permitted, and

he was replaced on the sulphide of calcium, which had been dropped about one month previous. Soon after resuming a general mixed diet his weight ran up to one hundred and forty pounds, being a gain of twenty three pounds.

ARSENIC IN ALBUMINURIA.

Albuminuria is divided into two sorts, false and true. False albuminuria includes all those cases where an albuminous body other than serum-albumen occurs in the urine. It would thus include not only those cases where pus or blood occurs in the urine, but those in which the so-called Bence Jones's albumen, egg-albumen, and possibly paraglobulin, make their appearance. Under ordinary circumstances, albuminous bodies do not diffuse through animal membranes, but albumen of egg will pass out through the kidneys, while the albumen of blood does not do so under similar conditions. Egg-albumen and Bence Jones's albumen is excreted by the kidneys, not only when they are injected into the blood, but when they are introduced under the skin, or in larger quantities into the rectum. In the two latter cases the interference with the circulation was obviously not the cause of the appearance of albuminuria. This difference in the diffusibility of the two kinds of albumen under similar conditions is probably due to the difference in molecular size. The facts regarding false albuminuria are, that egg-albumen, and other albumens such as Bence Jones's, pass out through the vessels of the kidney without any alteration in the structure of the organs, or interference with the circulation. True albuminuria consists in the passage of serum-albumen, which is a normal constituent of the blood, into the urine. It depends either upon alterations in the structure of the kidney, or interference with the circulation through it, or upon both. No increase in the arterial pressure, either generally throughout the body or in the kidney alone, will produce it. Compression of the aorta and other large arteries, and increased pressure in the kidney itself by division of the vaso-motor nerves of the organ, so as to allow the dilatation of the arteries and increased blood pressure in the kidney, do not produce albuminuria. But obstruction to the returning venous current, such as ligaturing the renal veins, plugging the vena cava, interference with the right side of the heart, or the injection quickly of large quantities of water into the jugular vein. Pathologically we find albuminuria occurring from venous congestion, in cases of thrombosis of the vena cava, in mitral disease, and in emphysema whenever the right ventricle begins to yield and allow regurgitation into the veins. Ligature of the renal artery, or the stoppage of the circulation through the kidney by the action of drugs, produces albumen in the urine when the secretion has been reëstablished. Under such

circumstances the kidney is not pale but deeply congested, due to the loss of contractile power in the veins and the consequent backing back of the blood from the large trunks. In embolism of the kidney, the result as regards a part of the organ will be the same as is found in the whole organ after ligature of the renal artery, and the albuminuria depending upon embolism may be explained in the same way.

The second cause of true albuminuria is alteration in the structure of the kidney, and these alterations may affect the vessels and tubules or the connective tissue stroma in which they are imbedded. In the waxy kidney the vessels are affected and the structure of their walls is changed, permitting the transudation of albumen in the same way as egg-albumen transudes in the normal condition of the vessels. In desquamative nephritis the albumen finds its way into the uriniferous tubules, because the epithelial lining which might have prevented its passage has been more or less removed.

A case is mentioned of the first or false form of albuminuria, in which the albumen seemed to be derived in great measure from the intestinal canal, and due to imperfect digestion of albuminous substances which were absorbed from the intestine, and excreted in the urine in much the same way as white of egg would have been if the person had swallowed several raw eggs at once. The presence of albumen was not constant, but markedly intermittent. In the early stage it was present during the summer months only. It was brought by exertion, either mental or bodily, in the morning, by fats, such as butter, or by meat for breakfast. After mid day he could do work, and could take fat and meat without bringing on the albumen. He suffered from acidity, especially in the morning. Nitro-muriatic acid diminished but did not remove the albumen. Digitalis diminished the albumen, but lowered the heart's action and interfered with digestion, and was discontinued. Quinine and sulphuric acid brought it in large quantities into the urine—doubled it, in fact, in twenty-four hours. Small doses of hydrarg. c. creta produced no beneficial effect. Fowler's solution in 3 m. doses at meals almost immediately removed the albumen, and enabled the patient to do much more work without its re-appearance. Arsenic was discontinued, and the hypophosphite of soda in 5 grain doses, three times daily, was substituted. This disagreed with his stomach and increased the albumen. He then returned to Fowler's solution again, and the albumen disappeared. On stopping the medicine the albumen came back, but the liq. sodæ arseniatis stopped it.—*London Practitioner.*

PATHOLOGY OF URÆMIA AND THE SO-CALLED URÆMIC CONVULSIONS.

Dr. F. A. Mahomed, in the *British Medical Journal* for July, advances a new and very plausible theory to account for the

convulsions of uræmia. In Bright's disease there is always a condition of high arterial tension, together with changes in the heart and arteries generally. As a result of these, various hemorrhages may occur from rupture of minute or larger blood-vessels; these often take place from or into the mucous membranes of the nose, intestinal tract, uterus, and, perhaps, air-passages and bladder. They are also known to occur below the serous membranes, as in the peritoneum, pleura, or pericardium. They are frequently seen in the retina, preceding or accompanying "albuminuric retinitis." They are very commonly seen in the brain, causing extensive hemorrhage; it is, indeed, the most common cause of apoplexy. Small capillary hemorrhages may, and do very frequently, occur in the brain as the result of Bright's disease, and these hemorrhages are the causes of the epileptiform convulsions generally known as uræmic, and all the so-called uræmic symptoms are due to the results of high tension on the capillaries of the brain, producing rupture of, or exudation from, them. The reason why this was not previously commonly observed is, that such hemorrhages usually occur in the grey matter of the convolutions, and that it is manifestly impossible that all the convolutions of the brain should be examined for minute punctiform hemorrhages, whose very existence was not even suspected. Several cases are reported in detail where the evidences of both recent and old hemorrhages seemed to have been the cause of the epileptiform convulsions prior to death.

While bearing in mind the miliary aneurisms described by Charcot and Bouchard, and also the similar true and dissecting aneurisms of the small cerebral vessels (especially those of the cortex) described by Rindfleisch and many others, and the well known forms of degeneration affecting the smaller vessels and capillaries of the brain, often seen in connection with Bright's disease and other allied conditions, and that with these anatomical changes frequent variations in the arterial tension occur, it will be admitted that there exists in Bright's disease abundant cause for the occurrence of all forms of cerebral hemorrhages: moreover, these ecchymotic spots are true hemorrhages, and not merely the sacs of minute aneurisms transversely divided.

AMPUTATION THROUGH THE KNEE-JOINT.

Both subjects of the operation were boys. One was done for chronic disease, the other for an acute traumatic injury. Both were done by the circular method. In one the patella was removed; in the other it was left *in situ*. Little or no constitutional disturbance followed either operation, and the stumps healed rapidly. They are broad and firm, and afford an excellent support for an artificial limb—far superior to any thigh stump, or even to the knee after amputation of the leg at the

point of election. I do not find that there is any difference in the utility of the stump, whether the patella be retained or removed. The danger to life is much less than amputation through the thigh; and the liability to osteomyelitis and pyæmia, with the consequent fatality, is a great deal less than after amputation through the continuity of the femur, or through the tibia and fibula. In view of these facts, after considerable personal experience in, and after extended observation of, amputations through the continuity of long bones, I am led to the conviction that —other things being equal—all amputations in the continuity of long bones in the vicinity of joints should be avoided, where it is possible to disarticulate from the lower aspect of the articulation, whether in the lower or upper extremity, with one exception, namely, that of the elbow-joint.—Mursick: *Boston Medical and Surgical Journal*, July 26th.

URINARY CALCULUS WEIGHING FIFTY-ONE OUNCES.

Dr. Bradley, at the June meeting of the New York Pathological Society, presented, on behalf of a candidate, a specimen of calculus which had formed in the pelvis of the kidney. A woman, aged sixty-three, suffered with symptoms connected with micturition, but not from renal colic. She exhibited to her attendant a bottle containing several hundred urinary calculi, measuring from an inch in diameter down to one-fourth of an inch. These had been passed at intervals during a period of four years. On making a vaginal examination a tumor was detected anteriorly, corresponding with the posterior wall of the bladder. This tumor conveyed to the finger the sensation of being filled with numerous caulculi resembling those shown in the bottle. After several days the urethra was sufficiently dilated to admit of the introduction of a pair of uterine forceps, but no calculi could be removed, although the finger was carried along the vagina to guide the forceps. All attempts at removal were discontinued for several months, and during that time the patient passed several small ones. Finally, the patient was anæsthetized, and the urethra again dilated sufficiently to admit of an ordinary anal speculum. A steel scoop was passed between the blades of the speculum, but nothing could be discovered. The finger was then introduced, when it was found that there was apparently a cyst containing the stones. This cyst was incised and the finger carried in, but only two small calculi were removed. The discovery was made, however, that a stone of size too large for extraction was present, and that further procedures should be abandoned. As the patient was coming out of the anæsthetic, syncope came on, and, although pulsation and respiration ceased for a time the patient rallied, but died two days after the operation, from peritonitis.

At the autopsy a rare and interesting condition was brought to light. In the usual position of the bladder, and extending up to the umbilicus, was a tumor, which proved to be the pelvis of the left kidney containing a calculus weighing fifty-one ounces, and upwards of five hundred much smaller ones. At the lower portion of the sac was an opening one inch in diameter, which was the result of the operation performed. The dimensions of the large calculus were—length, 6⅝ inches; greatest circumference, 16⅝ inches.—*N. Y Medical Journal.*

VAGINISMUS.

In the *American Practitioner* for July, 1877, is reported by Dr. James R. Chadwick, an interesting case of this painful neurosis, which had its origin in an irritable clitoris. Unlike ordinary vaginismus, in which the spasms follow immediately upon some local irritation and persists only for a short time after its removal, in his case the spasms often occurred idiopathically and persisted for hours. The neurosis seems to have had its origin in excessive venery, to which the patient had been addicted for several months. Bromide of potash in fifteen grain doses three times daily, and reduction of sexual intercourse to reasonable limits, relieved the case in fifteen or twenty days.

SIGN OF EARLY PREGNANCY.

In the same journal, Dr. Eugene C. Gehrung gives the profession a new sign of early pregnancy. It consists in the sensation communicated to hand through the sound when it touches the ovum. "If the sound or probe be introduced into a healthy womb in the direction of its axis previously defined by the usual methods, the sensation communicated to the hand through the sound when touching the fundus, is that of touching a moderately solid object, much resembling that produced in touching the roof of the mouth with the same instrument. If an ovum of any size be present, circumstances are changed. The sound will proceed with equal ease through the internal os, but as soon as the ovum is touched the sensation communicated to the hand is like that felt in pushing the sound against a bladder filled with fluid, that is, a gradual increasing resistance; in addition to which, according to the size of the ovum or the amount of pressure exercised, the sound will be driven back, when loosely held, with a greater or lesser amount of force communicated to it by the tendency of the ovum to resume its former globular shape. In other words, the sound meets with an exceedingly elastic body

beyond the os internum instead of the solid uterine walls. This symptom, when present alone, is not positive evidence that pregnancy exists, nor, when absent, negative; because there are a number of other conditions which give a similar result. On the other hand, it is a well-known fact that the ovum, in the earlier periods of pregnancy, is only attached to a greater or lesser part of the interior of the womb, and consequently the sound may slip by it without producing that particular effect; yet when found it should caution the operator, and make him reconsider the case carefully before proceeding further.

Differentiation is necessary only between products of conception on the one hand, and certain pathological conditions on the other.

INFLUENCE OF MENSTRUATION, PREGNANCY, AND MEDICINES ON LACTATION.

Pregnancy and lactation are incompatible. It is but a rare occurrence that a woman should have strength and blood in sufficient quantity to sustain herself, a nursling, and an embryo or fœtus besides. Rarely will the uterus be able to resist the persistent mammary irritation kept up by nursing, and the fœtus is expelled. The milk of pregnant women undergoes a certain number of changes. The solid constituents decrease, particularly fat, salts, and casein, and the milk assumes the nature of colostrum. The changes brought on by menstruation are analogous, although not so complete. Thus there is during menstruation a marked diminution of milk-sugar, a trifling diminution of butter, and a trifling increase of albuminous material. Notwithstanding the chemical changes in the milk during these periods, pregnancy is not infrequent during lactation, and the secretion of milk may be quite copious and exhibit no very apparent alterations. While it is true that there are many observations of colic, vomiting and acid diarrhœa, on the part of the nursling, there are just as many of entire euphoria during the menstruation of wet-nurse or mother. In general, lactation is persisted in, and is dispensed with at the expiration of nine or twelve months. At this time menstruation has usually re-appeared and is regular. That length of time is also required to fully reëstablish the uterus and ovaries without regard to lactation. According to Robertson, one half the nursing working women of Manchester, England, conceived during lactation. L. Meyer tabulates 1285 in 395 individuals. Of 1285 there were 685 who nursed; of these 685, there were 402 who menstruated after some time. The first menstruation appeared after six weeks in 99 (25 per cent.); after twelve weeks in 46; after four months in 41 of the above number. Menstruation, in his observations, had no inju-

rious influence upon the health of the nurslings. Therefore the re-appearance of menstruation is no indication for either weaning the baby or changing the wet-nurse. There is but one such indication, viz., ill health of the baby, brought on by the continuation of nursing. For the diminution of the quantity of blood in the maternal organism, or the thorough change in its circulation, *may* result in either quantitative or qualitative alterations of breast-milk. In case of doubt, the regular use of the scale may decide the question of nursing or weaning by determining the weight of the baby.

Medicines administered to a mother not infrequently appear in her milk. This is due either to a disturbed condition of health or an imperfect development of the gland. The quantity and quality of milk depends upon the development of the gland. Milk is not the product of the action of the cells; it is the transformed cells, the very organ itself. As long as the epithelium has not undergone a total change, the secretion is not milk, but colostrum, with its larger globules. The character of the gland influences the milk much more than food. The latter influences milk only by building up the gland, the cells of which receive materials of different kinds, the principal of which is albumen. The milk is therefore a secretion from the cells, not a transudation from the blood. The more stable the blood, the less the liability to the presence of foreign or medicinal substances. Milk secreted from an insufficient mamma, by a woman not in full health and vigor, by an old woman, by a very young woman, by an anæmic woman, by a convalescent woman who has used up a large portion of her albumen both in the circulation and in the tissues, by a woman soon after confinement, by a neurotic woman with frequent vaso-motor disturbances—milk, in fact, which is not exclusively composed of mammary epithelium, and contains admixtures, small or large, of transuded serum, is apt to be impregnated with elements circulated in the blood. The indications on the one hand for permission to nurse, on the other for the administration of medicines to a nursing woman, require, therefore, a greater strictness than is usually conceded, and will have to be modified, if the greatest good is to come from nursing to the young infant. In the first period of lactation, the glandular transformation is not yet accomplished. The secretion is of a different nature. It requires days to exhibit casein. Until then, the protein shows the nature of albumen, the butter and salts are very high, and the epithelium almost unchanged. This colostrum is more like a transudation than a glandular secretion, and is frequently found with disturbances of the health in anæmia, fevers, pregnancy, or advanced age of mother or nurse. It is therefore apt to transfer to the nursling the liquid constituents of the mother's blood, no matter whether normal or abnormal, beneficial or injurious, organic or inorganic.

REVIEWS AND BOOK NOTICES.

The Practitioner's Reference Book, etc. By Richard J. Dunglison, M.D. Philadelphia, 1877.

The volume before us is indeed what its name imports. It is filled from beginning to end with valuable material, carefully condensed and practically arranged.

The thorough investigation of the *metric* system, and its comparison with the system in practical use in this country, will no doubt hasten its early adoption by the profession of this country.

The list of medicines, with the proper doses for administration, is thorough, and contains all of the latest medicinal preparations.

The classification of diseases, and the table of remedies now used for each, affords at a glance opportunity for deeper and more systematic study.

The portion of the book devoted to diet is especially useful; containing, as it does, receipts for making various and tempting articles for the invalid.

The rules for conducting *post mortem* examinations are *simply perfect;* and their careful study will enable physicians to perform, without harrowing the feelings of relatives, those investigations so essential to correct pathology.

The book has been carefully printed with clear type, and on superior paper. It contains 341 pages. Embodying, as it does, so much useful information, so carefully condensed, we heartily recommend it to the profession.

EDITORIAL.

The "Destructive Insects Bill,"

which had its second reading in the British House of Lords on the 9th of August, is in all probability now inscribed among the statutes of that government. The *London Times* of August 10th, states that "a dread of the Colorado Beetle is the especial motive for the Bill. If that terrible creature comes among us during the Recess, we shall, the Duke of Richmond declares, be quite unprepared to deal with it. The Privy Council Office has no power to take steps for eradicating it, or for putting a stop to its con-

tinued importation. The Destructive Insects Bill is intended, therefore, to supply what is here wanting. It enables the Privy Council to prohibit the introduction of articles in which the beetle is likely to be found, and to order the wholesale destruction of any crops among which it may have established itself. There are also clauses making it penal for any one to harbor the enemy, or to sell him or offer him for sale in a living state. A *cordon sanitaire* will thus, it is hoped, be drawn round our islands, and the territory within it will be kept clear, or cleared, if necessary, before any fatal mischief has been done."

From information received from our learned fellow-townsman, Dr. James Burns, we suppose that scientific accounts of this insect will be found under the technical designation of Doryphora, decem-lineata. While it is an insatiable destroyer of various crops important for human maintenance, it possesses such powers of reproduction, that it has been computed that the unmolested increase of a single pair would, in twelve months, amount to sixty millions.

The physician of the present day views this action on the part of the most enlightened government earth affords, with unusual interest. Here is an enemy to man of diminutive proportions, and yet of such size that he is with facility made a matter of objective study. On account of this fact, it has been ascertained by experiment, that the perfect insect may survive two months' privation of food or air. Other interesting facts connected with the Colorado beetle relate to its mode of spread. It is not, like the germs of many diseases, properly speaking, an air-borne insect. It extends its area of settlement and devastation by migration. This has been computed at a rate of sixty miles a year, so that a period of 15 years was consumed in its transit from 100 miles west of Omaha to Lancaster, Pa., where it became domiciliated in 1874. The latter fourth of this area of extension was traversed in a relatively shorter period of time, because railroad cars became vehicles of transportation. As explanatory of the physician's interest in this legislation, let us remember that in the organic kingdom there is a law which seeks to compensate for the helplessness of minute size by a proportional increase of powers of reproduction. It may be further remembered, that the microscope still teaches a belief that there exist organisms beyond the reach of its highest powers of revelation, perhaps as perfect

as the insect now occupying the attention of British legislators. Again, it is true that the "infinitely small," if such a term shall be quoted from writings more than a century old, may for indefinite periods survive under circumstances most unfavorable or even positively inimical to continuance of life. What a wonderful source of speculation and analogical reasoning! It did not fail to attract the attention of the Editor of the *London Times*, who adds the following paragraph on this point.

The subject of the destruction of noxious forms of life may be a good deal more widely treated than it is by the Duke of Richmond's Bill. The spread of many types of disease is dependent simply on the introduction into the human body of some particular plant or germ. Typhoid fever is notoriously thus propagated. There is scarcely any way in which science can be of more practical use than in informing us how this and other results like it can be attained. If we can never hope quite to rid ourselves of the host of unseen enemies which are waiting for us on every side, which find their dwelling in the air we breathe, the water we drink, and the earth we tread upon, we may yet by careful study ascertain the signs of their presence and the proper precautions to be taken against their dread ravages. The Duke of Richmond's Bill touches a small part of a very wide question, and it touches it none too soon. We have enemies enough of every kind at home. It scarcely needs the collection of "economic entomology" which the Lords of the Privy Council have been issuing for some time past, or the *Exposition des Insects Nuisibles* which was held last year at the Tuileries, to inform us of the unpleasant truth, however useful these aids may be in teaching us the exact nature of the admitted nuisance, and the right method of dealing with it. We may well wish to guard ourselves in time against the introduction from another hemisphere of a new foe at least as formidable in its way as any which now vex us.

A Linguistic Problem.

Is it a pun, a mere coincidence, or traditional fragment of mutilated latin, which Stephens puts in the mouths of the Esquimaux when they endeavor to inform the marooners that Wutchee and Wunchee are twins? "Bi-coit-suk." The meaning of the word we could only guess at. But if "Bi-coit-suk" does not mean twins, I am greatly mistaken. Let learned linguists refer to "Left on Labrador," page 230, and then rise to explain.

State Medical Society.

A number of letters have reached us calling for a convention to establish a State Medical Society. The most important of these are from the Shreveport Medical Society, and from the Plaquemines Medical and Surgical Association. We are ready to publish further calls, or to lend in any feasible manner our aid, to any determinate effort to achieve the desired result.

Death of Dr. Alpheus B. Crosby, and Vacancy in Bellevue Hospital Medical College.

The vacancy occasioned in the Faculty of Bellevue Hospital Medical College, by the death of this distinguished gentleman, has been filled by the election of Dr. Joseph D. Bryant as Lecturer on General, Descriptive and Surgical Anatomy. This information arrived too late for a change in the advertising columns.

Present to University of Louisiana.

Messrs. McKesson and Robbins, among the leading druggists of this country, have presented the Chair of Materia Medica in the University of Louisiana, with more than 140 handsomely prepared and carefully bottled specimens of the indigenous medical plants of this country.

NECROLOGY.

Dr. Alexander Hart.

Died, in New Orleans, May 14th, 1877, Dr. ALEXANDER HART, aged 64 years.

Dr. HART was born in Charleston, S. C., May 30th, 1813. He was educated at Charleston College, and at the age of eighteen years removed to New Orleans for the purpose of studying medicine. He was one of the first matriculates of the New Orleans Medical College, now Medical Department of the University of Louisiana. He graduated from that institution in 1836. He at once located in New Orleans, and speedily won distinction in his profession. In 1843 he married Miss Canter, who survives him.

He held positions of trust and importance under the city administration, having been city physician, and director of public schools.

When the late war commenced, his impulsive and generous nature would not permit him to remain at home, and he left the city as Surgeon of 11th La. Infantry, C. S. A. After doing his duty nobly in the field, he established the military hospital at Montgomery, Ala. Later, he organized a hospital at Selma, Ala., where he remained in charge of wounded confederates until the last one was removed or recovered in October, 1865.

Dr. HART was noted in the profession as an untiring and zealous observer, a laborious worker, a pains-taking teacher, and a close diagnostician. He was especially remarkable for his accuracy in physical diagnosis.

Many of the physicians throughout the South will remember the useful lectures he delivered to them in his wards in the Charity Hospital.

Dr. HART'S health had been impaired for about two years, but he did not permit himself to be remiss in his duties, and on the morning of the day he died, he delivered in the hospital one of his most characteristic lectures. His malady was heart disease.

Dr. Samuel Smith Simmons.

Died, in Natchitoches, La., July 22d, 1877, Dr. SAMUEL SMITH SIMMONS, aged 62 years, a native of Georgia, and for the last 37 years a resident of this parish—a graduate of the Louisiana Medical College in 1838.

One more noble soul gone to take its place in the realms of the righteous—gone from the dear ones who loved him most—called by that All-wise Creator who has said, "Come ye blessed of my Father, for thine is the kingdom of Heaven."

The dear friend can claim a place there; a kind, loving husband, a devoted father, ever ready to lend a helping hand to the needy; never deaf to the voice of Charity; no sacrifice too great that duty demanded.

> "Though duty's face be stern, her path is best:
> They sweetly sleep, who die upon her breast."

His children look back with pride upon their father's record. The finger of reproach cannot be pointed towards him. You, sons, the greatest tribute, you can pay to his memory is to follow his example, that, like him, when you have passed away, you may leave behind few enemies, but many warm friends. Such is the wish of one who loved him.—*Natchitoches Vindicator.*

METEOROLOGICAL AND MORTALITY REPORTS.

Meteorological Report for New Orleans—July,

Day of Month.	Temperature.			Mean Barometer Daily.	Relative Humidity—Daily.	Rain fall—inches
	Maximum.	Minimum.	Range.			
1	93	79	14	30.213	61.00	.00
2	92	79	13	30.188	62.66	.00
3	91	77	14	30.188	63.00	.25
4	92	76	16	30.223	70.00	.00
5	93	79	14	30.222	63.66	.00
6	96	80	16	30.127	60.33	.00
7	94	81	13	30 160	59.00	.00
8	91	79	12	30.057	65.33	.01
9	90	80	10	30.063	63.33	.00
10	93	81	12	30.013	58.33	.00
11	92	81	11	30.003	66.66	.54
12	91	81	10	30.070	62.33	.00
13	95	81	14	30.085	51.33	.00
14	94.5	81	13.5	30.150	74.00	.45
15	90	79	11	30.127	78.33	.13
16	89	78	11	30.150	62.66	.00
17	91	79	12	30.128	65.66	.00
18	92	77	15	30.038	68.66	.15
19	87	77	10	29.970	81.10	.93
20	88	77	11	30.027	46.33	.00
21	84	73	11	30.115	46.66	.00
22	84	73	11	30.125	56.66	.00
23	81	74	7	30.118	79.00	.13
24	81	75	6	30.175	87.33	1.08
25	79	70	9	30.082	78.10	1.66
26	86	74	12	30.070	74.00	.41
27	89	76	13	30.155	83.33	.49
28	89	77	12	30.193	83 00	.08
29	90	76	14	30 110	70 33	.00
30	93	79	14	30.046	65.66	.00
31	92	70	22	29.900	64.66	.00
Mean..	89.4	77.4	12.4	30.099	66.91	Total. 6.31

Mortality in New Orleans from July 2d, 1877, to August 19th, 1877, inclusive.

Week Ending	Yellow Fever.	Malarial Fevers.	Consumption.	Small-Pox,	Pneumonia.	Total Mortality.
July 8.....	0	16	20	19	6	162
July 15.....	0	10	20	11	1	129
July 22.....	0	14	20	15	5	124
July 29.....	0	10	10	11	2	89
Aug. 5.....	0	19	17	8	4	134
Aug. 12.....	0	13	13	5	3	84
Aug. 19.....	0	13	16	6	6	93
Totals	0	95	116	75	27	815

Board of Health, State of Louisiana.

SAMUEL CHOPPIN, M.D., *President.*
B. F. TAYLOR, M.D., *Secretary.*

W. G. Austin, M.D., F. Taney, M.D.,
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THE

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ORIGINAL COMMUNICATIONS.

OCCLUSION AND DILATATION OF LYMPH CHANNELS.

BY SAMUEL C. BUSEY, M.D., WASHINGTON, D. C.,

Professor of the Theory and Practice of Medicine, Medical Department of the University of Georgetown; one of the Physicians to the Children's Hospital; Physician to the Louise Home, etc., etc.

Continued from September No.

CHAPTER II—continued.

*Case** 55. "S. M., a man aged 60, was examined August 28th, 1863. The body was very œdematous, the heart was hypertrophied and fatty, the aortic valves much diseased, and covered with vegetations; the auriculo-ventricular orifices were dilated, and the valves diseased."

"The coronary arteries were tortuous and atheromatous. The aorta contained some calcareous plates and patches of atheroma."

"The pleuræ were adherent—the adhesions very œdematous. The lungs were emphysematous in front, œdematous posteriorly, and contained some patches of pulmonary apoplexy. The liver was much congested, and somewhat cirrhotic—the hepatic venous radicles were dilated; it weighed 52 oz. The capsule of the spleen was thickened. The right kidney was natural, excepting an old cicatrix; the left contained several cysts, none of large size. The two organs weighed 16 oz. The stomach was dilated, its muscular layer hypertrophied in the neighborhood of the

* Dilatation of the Lacteals—T. Granger Stewart. Edinburgh Medical Journal, vol. ix., p. 448. 1863.

pylorus. The mucous membrane was extremely congested, and in some parts ecchymosed. Towards the cardiac end there were patches of a yellowish color, perhaps results of old extravasation. The intestine throughout its whole extent was congested. In many parts the small veins formed little prominences above the surface. There was a polypus in the ascending colon. Scattered throughout the whole small intestine was a number of whitish-yellow patches, varying in size from that of a pin's head to that of a small bean; some were granular on the surface, and evidently connected with the mucous membrane; others were smooth, rounded, and lobulated like little fatty tumors, and evidently lay in the submucous layer, for by a little careful dissection they could be separated from the mucous membrane on the one side and from the muscular layer on the other; a third set, again, much less frequent, consisted of a combination of the other two. On microscopic examination, those of the first kind were found to be made up of groups of villi greatly distended, as in the process of digestion—they were dark and opaque. On tearing them, a milk-like fluid escaped, which presented microscopically the characters of milk or chyle. The villus then collapsed, and there was no appearance of the blood-vessels having been distended; and indeed, it was obvious that the whole enlargement depended upon the presence of the milk-like fluid. As this is the matter naturally present in the lacteals during digestion, and as these take origin in the villi, we seem to be warranted in concluding that this class of patches results from the retention of chyle in the blind extremities of the lacteal vessels of a number of adjacent villi. The whitish-yellow color arose from the chyle shining through the coats of the villus, and the granular appearance of the surface from the patch being composed of numerous villi. Those of the second kind resembled small fatty tumors, and were situated between the mucous and muscular coats. Some consisted of a simple lobule, others of several. On pricking any of them, a milk like fluid, closely corresponding to that above described, flowed out, and the walls of the particular lobe collapsed. I could not satisfy myself as to the structures of the bounding walls, but some of the patches presented peculiar elongations from the main mass, like tails proceeding from the body, which evidently consisted of some tubular structure. But these did not pass into blood-vessels, nor did they seem to bear any special relation to them, and were

therefore to be regarded as portions of lacteal vessels. On the whole, from the character of the contained fluid, the structure and appearance, and the observations previously made, we may conclude that these patches consisted of dilatations of the small lacteal vessels."

In this case the venous hyperæmia of the abdominal organs was less marked than in the preceding one, and the stasis of chyle took place in the intestinal villi, thus again illustrating the influence of the retardation of the venous blood current, consequent upon heart disease, upon the locomotion of the chyle, producing distention of the central lacteal vessels of the villi, and arresting the further progress and absorption of the chyle. To the incompetency of the auriculo-ventricular and aortic openings was added fatty degeneration of the heart; thus enfeebled action of the organ and regurgitation were coöperating factors in diminishing the current of the chyle. How far this alteration in the tissue was due to a stasis of lymph in the lymph vessels of the heart, can only be conjectured.*

In Rokitansky's case (No. 37) of chylous ascites there was dilatation of the heart with "thickening and shortening of the mitral valves." The cardiac affection not only interrupted the flow of the chyle in the thoracic duct, but occasioned a stasis of chyle in the lacteals and mesenteric glands, and of lymph in the sub-pleural lymphatics, and an effusion of a milk-like fluid into the pleural and abdominal cavities.

In Friedberg's case of colossal development (Case No. 48, *Amer. Journ. Obstetrics*), the hypertrophy of the left upper extremity was complicated with extensive nævi, occupying the posterior and anterior surfaces of the left thorax and of the left humerus. "The lymph glands upon the left side of the neck and along the inferior maxilla were movable, hard tumors, united in strings and sometimes crowded together in groups. Between the left nipple and shoulder were two uneven, small, flat, movable tumors, and in the axilla and upon the inner side of the left arm was a network of hard, nodulated, movable, thin cords, over which the skin was occupied by light-yellow colored vesicles,

* Caldani "observed, in the cadaver of a maniac, dying from peripneumonia, with the naked eye, the superficial lymphatics of the heart, which were very conspicuous, and so arranged that they seemed to run from apex to base, so apparent that they seemed to be swelled with coagulated lymph."—Institutiones Anatomicæ, vol. ii., 1791, foot note pp. 101–102.

from hemp-seed to bean size. Upon the inner and posterior side of the left forearm were S-formed, bead-like rows of small, flat, semi-solid nodules, from hemp-seed to bean size, which were lost in the region of the plica cubiti, and extended to the volar side of the wrist-joint." The grouping together in this case of the evidences of disturbed venous circulation, and of interruption of the lymph stream, suggests the probable existence of some obstruction to the flow of the blood through the large veins near the heart, which affected the current in the left subclavian vein.

Morgagni refers* to the cases of Valsalva and Santorinio, in both of which there was considerable dilatation of the lacteal vessels, produced by the pressure of an aneurismal tumor on the thoracic duct. In Valsalva's case, the aorta from the heart to the diaphragm was dilated, and the "lacteal vessels, which arose from the small intestines from about 8 digits below the pylorus, as they passed to the centre of the mesentery presented the appearance of numerous whitish spots, having a diversity of figure and magnitude, and were tinged with chyle, which tasted like milk, though inclining to a saltish flavor."

In Oppolzer's case, the retardation of the venous blood and chyle currents and stases resulted from mitral and tricuspid insufficiency. The thoracic duct (see page 470) was dilated throughout its entire course.

These autopsies present the following array of facts: In Petters' case an organic affection of the heart, which led to dilatation of the right auricle, resulting in great stasis in the venous system, existed in connection with ampullar dilatation of the lacteals of the intestinal villi, lymph cysts on the mucous surface of the large intestines, and an enormous dilatation of the lymph vessels and glands of the right inguinal region; in Stewart's case, in connection with an hypertrophied and fatty heart with valvular disease, were found detention of chyle in the intestinal villi and distention of the small lacteals; and in Rokitansky's case, a dilated and hypertrophied heart with mitral insufficiency were found in connection with extensive dilatation of lymph channels, stasis of lymph and chyle, and effusion into the large serous cavities. Do these coëxisting post mortem appearances directly connect the cardiac affections with the lymph stasis and lymphan-

* 17th Epistle, De sedibus et causis morborum, Venice, 1761, Liber. ii., p, 152. Also Cook's Trans., vol. i., pp, 418 and 420, 1824.

giectasis as cause and effect? The remoteness from the heart and localities of the latter phenomena in cases 54 and 55, and the intervention of several tiers of glands and numerous valves, suggest the more direct operation of some proximate cause. The condition of the villi disclosed in both cases invites the hypothesis of a vis a tergo force derived from contraction of the intestines or from endosmotic action, impelling the chyle into the absorbents.* Cruikshank saw in a female, who died suddenly seven or eight hours after a full meal, hundreds of villi full of a white fluid, and Lieberkühn and Sheldon describe ampullated appearances of the lacteals of the villi filled with chyle. This hypothesis is, however, insufficient to explain the concomitant conditions. In Valsalva's case, the dilatation of the thoracic duct began at the obstruction to the onward flow of the chyle, and in Rokitansky's case, in which the "chyle vessels and thoracic duct" were markedly distended, even more so than the other ectatic vessels, which, though directly connected with the duct, were not in the line of the movement of the chyle. These facts enhance the probability of the derivation of the obstructing force from the interrupted and impeded chyle movement in one case, and from the impeded blood circulation in the latter case. In Petters' case the duct attained the size of a goose-quill, which result could only ensue from stasis behind the obstruction. The remoteness of the effects from the obstacle retarding the current of the fluid may depend upon various concomitant conditions—especially upon the anatomical integrity and degree of tensibility of the vascular walls. When the impediment to the normal flow of the chyle occurs at or near its outlet, the area of stasis and ectasis would necessarily depend upon the duration and extent of such obstacle; and hence, when an extended area of such effects, involving the duct itself, either partially or throughout its course, has been found, the manifest inference is that the cause has been one of protracted duration. In Ormerod's case

* This dilatation usually extends as far as the receptaculum chyli and the mesenteric lymphatics; sometimes also the latter alone are dilated, and only in certain parts of the mesentery; the smaller vessels of the intestines and of the peritoneum may be dilated in the form of cords and vesicles, and extravasations of chyle may occur within the mesentery and in the walls of the intestines; chylous fluid in considerable quantity has also been observed free within the peritoneal cavity. The chyle within the dilated vessels is usually inspissated or coagulated.—Quincke: Ziemssen's Cyclopedia, vol. vi., p. 550.

(40) of chylous ascites, the interruption to the flow of the chyle was caused by the plugging of the left subclavian vein and its affluent branches "with a light colored, ragged clot, evidently of long standing." In Cayley's case (39) of obstructed thoracic duct and rupture of the receptaculum, the "duct throughout its course was immensely dilated; at its termination it was about the size of the little finger." At the junction of the duct "with the subclavian vein the former suddenly narrowed, its coats thickened, and just at its mouth a fibrinous granular vegetation was attached to the lining membrane of the vein, which almost completely obstructed the opening of the duct. The narrowed part of the duct was completely blocked up by a firm, yellowish, cylindrical clot; on removing this a very small probe could be passed from the duct into the vein." In Hughes' case (27) of abdominal effusion, supposed to have resulted from the pressure of mesenteric tumors, the "heart was thin, pale, weak and flabby," and "numerous lacteals—large, tortuous, varicose and distended, some with a milky and others with a clear fluid—were observed in all parts of the mesentery." This case was complicated with abdominal tumors, "consisting of several agglomerated mesenteric glands," believed to have been cancerous, but from a number of the enlarged mesenteric glands "a cream like fluid exuded," and hence, it is not beyond the range of probability that the entire morbid appearances of the mesenteric glands and lacteals may have found their cause in lymph stasis produced by the condition of the heart. In Ormerod's case, the resistance to the flow of the contents of the thoracic duct must have been exclusively derived from the interrupted blood current, which was impeded by the "ragged clot" in the subclavian vein and by the pressure of the tumor upon the innominate. The heart was normal and the duct itself was unobstructed. In case 39 two factors were in operation—interrupted blood current, occasioned by the fibrinous vegetation attached to the intima of the subclavian vein, and the partial obliteration of the lumen of the duct near its terminus. A condition partially exemplifying the obstructing forces operating in these two cases, was presented in Virchow's case (No. 59, *Amer. Journ. Obstetrics*), in which the mouth of the duct was occluded by a thrombus of the external jugular vein. In addition to the retardation of the blood current in the jugular, and in the subclavian produced by the projecting part of the thrombus, an impediment to the exit of the fluid

from the duct was occasioned by the same projecting thrombus; and, notwithstanding the probable inconstancy and incompleteness of the occlusion of the opening of the duct during life, the area of lymphangiectasis was very extensive, involving nearly all the internal organs, which were "distended with lymph vessels, the intestines especially were covered with bead-like bands." The cases of Bassius and Morton (Nos. 23 and 26), in the former of which a chylous fluid was poured into the thorax through a ruptured orifice in the thoracic duct, at or near the 3d dorsal vertebra, and in the latter the lacteals were ruptured in consequence of the pressure of a tumor upon the duct near the subclavian vein; and other cases previously cited (Nos. 25, 28, 33, 38, 42, 43 and 50), furnish data, not necessary to recapitulate, which contribute, to a greater or less extent, to sustain and confirm the deduction made from the cases which more directly connect the lymph stagnation with interrupted and impeded circulation in the heart and larger veins near that organ. The clinical details of and post mortem phenomena observed in the cases reported by Petters, Stewart, Hughes, Cayley, Ormerod, Rokitansky, Oppolzer, Virchow and Worms, must be accepted as indisputable facts, correctly observed and described by competent and careful observers, and whatever may be the indefiniteness and errors of description, the anatomical and physiological inaccuracies, and ambiguities of the language of the reporters of the cases which occurred a century or more ago, tested by the more recent observations, conducted under circumstances which do not admit of a doubt, they must be accepted as veritable reports of cases actually observed. These cases, the recent and the old, establish the important fact, which will appear more manifest when discussing the effect of ligation of the thoracic duct, that narrowing or obliteration of the chyle-conveying channels will produce, sooner or later, dilatation of the vessels behind the obstruction, which begins at or, perchance, extends up to the locality of the obstacle to the onward flow of the contained fluid, and to stasis of the contents. This fact applied to the cases in which the dilatation, with or without rupture, of the vessels and stasis of the fluid has been ascribed to impeded heart circulation, in which no other obstacle was recognized, establishes the relation of cause and effect between the cardiac anomalies and the consequent lymphangiectasis; for in all such cases, with a single exception (in which case other obstacles were dis-

covered in the enlarged and degenerated mesenteric glands), the ectasia either began at or had extended to the outlet of the thoracic duct into the subclavian vein, and in the cases of narrowing or obliteration of the duct at or near its outlet analogous alterations were found in the duct below the obstruction.

In concluding this citation of illustrative cases, I must introduce the following "case* of great enlargement of the whole of the right lower extremity, with at times a flow of milky-looking lymph from behind the ankle," which suggests a causative relation between obstructed heart circulation and engorgement of lymph in parts more remote from any direct influence of such impediments, upon the movement of the fluid in and its exit from the thoracic duct, than the cases previously reproduced.

Case 56. "Louisa R., the fourteenth of seventeen children, was, like her brothers and sisters, born at full term, but was born deeply cyanosed; her lips and finger-nails were dark blue, her face livid, and the general surface of the body dark. Respiration was very labored and sighing, and for many weeks it was not supposed that she could live. 'Suffered for the first 4 or 5 years from frequent attacks of dyspnœa' and 'inflammation on the chest,' but 'was always well nourished and fat,' and is now (1869) 'short, stout and generally healthy looking, with a good bright red color in the cheeks and lips, but is easily affected by cold, and then complains of want of breath and a feeling of tightness in the chest; and at such times the complexion assumes a markedly livid tint, respiration becomes somewhat labored and noisy, the extremities cold, and the nails dark blue. No morbid sounds are heard in the lungs. The pulse is normal in frequency, rhythm, volume and force; 'but all over the heart is heard a soft, blowing, systolic murmur, which is loudest at the junction of the second left costal cartilage with the sternum.'

"During her sixth year a swelling appeared on her right leg and ankle, which gradually extended upwards, though not above the knee until two years had elapsed; but in the third year, when the patient was between seven and eight, 'the swelling extended slowly and steadily upwards till the whole limb was implicated,' but has not gone above the 'inguinal line.' The increase in the size of the swelling was always greater towards the evening, and did not affect the foot when a boot was put on

* Cholmeley: Trans. Clin. Soc. London, vol. ii., p. 116. 1869. See for analysis of fluid, p. —.

when the child first got up, but was very great in the foot if the boot was not put on. When treated, in 1867, by rest in bed, with elevation of the foot, graduated bandaging from the toes to the groin, and pressure on the femoral artery, the swelling diminished considerably, but 'returned rapidly as soon as she was allowed to be about again.'

"At the date of the report the entire limb was uniformly enlarged, felt 'soft, firm and elastic,' the lower part being firmer and more tense than the upper; in color and temperature the limbs did not differ. The skin was smooth and soft as far downwards as the middle third of the leg; below it was 'harsh, rough, dry' and scaly. On the outer surface of the ankle were a number of 'soft, smooth, red, flattened papules,' not larger than a split pea. On the hypertrophied skin of the great, second and third toes, were 'rough, hard elevations, looking much like a half aborted and dried herpetic eruption, from which occasionally a discharge took place; and over the tendo-Achillis was a 'humid patch, from which a milky-looking alkaline fluid dripped,' similar in character to the fluid which issued through punctures made into the lower part of the limb which exhibited under the microscope broken-up cells, granular matter, some oil globules, blood corpuscles, 'and coagulated on boiling.'

"The comparative measurements of the lower extremities were as follows:

	Left.	Right.
"At the ankle, -	8 inches,	9¾ inches.
"Mid-leg, - - -	9 "	14 "
"Below the knee, -	9¾ "	14½ "
"Above the knee, -	10½ "	16½ "
"Upper part of thigh,	15 "	17½ "

"There was no fullness or swelling of any kind detected in the groin or pelvis; nothing abnormal in the condition of the right nympha, or labium; never any pain in the limb; nor any injury, accident, or known cause to account for the condition."

This curious clinical history does not, in the absence of a post mortem examination, positively establish any connection between the lymph stasis, which was first apparent near the ankle, and the disturbed cardiac circulation—the cause of which was probably located in the pulmonary artery; and though it seems improbable that an obstructive force originating in the retardation of the blood current from the right ventricle could be transmitted

backwards along the fluid contents of the thoracic duct and lymph vessels and glands, through which the lymph must pass from the lower extremity to reach the receptaculum; yet in view of the cases previously cited, such explanation of the phenomena cannot be excluded. Retardation of the current of the fluid, and repletion and distention of the thoracic duct and receptaculum, would assuredly offer resistance to the current of the fluid in affluent vessels. But why should the stasis be localized in or limited to one extremity? This circumstance must, perhaps, find its explanation in some abnormal condition of the lymph vessels of the right lower extremity, which, like the cardiac defect, was probably congenital. The early history of the swelling and engorgement shows conclusively that the accumulation of the fluid in the most dependent part of a limited area, and its limitation by pressure, was hypostatic, and the to and fro movement of the fluid, according to the relative elevation of the upper and lower parts of the affected limb, demonstrated the absence or insufficiency of the valves. Admitting the existence of either of these conditions, it would seem unnecessary to invoke the influence of an agency so remote as cardiac obstructive circulation, for either the absence or incompetency of the valves would prove sufficient. The assumption that the engorgement could have had its origin in obstructed glands or occluded lymph channels, independently of any anatomical defect of the vessels, is discredited by the hypostatic nature of the swelling, the to and fro movement of the fluid, and by the gradual and continuous extension of the swelling upwards. In such case the swelling should have appeared first at or near the obstruction, and extended backwards along the course of the affluent channels.

The force exerted upon the contents of the thoracic duct by the passing current of the blood in the subclavian vein is nothing more than an exemplification of the hydraulic principle of Venturi;* that is, if a stream of water is made to flow through a tube, into which another opens and communicates, at its distal end, with a reservoir of water, a current will be established through the second tube and continue as long as the fluid is supplied. The anatomical junction of the thoracic duct with the venous system is peculiarly favorable to the maximum development of this principle; for the near affluence of the internal

* Draper: Human Physiology, p. 90.

jugular vein, the proximity of the union of the three vessels, and the inclination of the duct to the subclavian—all contribute to the enhancement of the effect upon the chyle motion. To this must be added the impetus derived from gravitation, which impedes the ascent of the fluid, but the moment it passes the arch of the duct its operation is changed and it promotes the descent of the chyle towards the outlet. Out of this principle of Venturi must grow the converse– that any retardation of or obstacle to the passing current of blood in the subclavian vein, either from diminution of its lumen or from regurgitant heart affections, must slow the movement of the chyle.

Having thus established, if not conclusively, at least inferentially, the influence of obstructed circulation in the heart and great veins near it, in producing stagnation of lymph and chyle, the interesting inquiry suggests itself, to what extent was the stasis of lymph in the liver concerned in the causation of the structural alterations found in that viscus in Petters', Stewart's, Oppolzer's and Ormerod's cases? Mechanical hyperæmia of the liver, so frequently consequent upon obstructed cardiac and pulmonary circulation, has been uniformly accepted as sufficient cause of the subsequent cirrhotic condition; and, in view of the venous stasis occasioned by the heart affections in Petters', Oppolzer's and Stewart's cases, the morbid condition of the liver might be satisfactorily explained. Not so, however, with the case of Ormerod, in which no interruption to the blood circulation in the liver was recognized; nevertheless that organ was "small, thin, and studded with small masses of a dull-white color," a condition analogous to an advanced stage of cirrhosis of that organ. Frerichs* maintains that cirrhosis of the liver consequent upon hyperæmia from obstructed circulation in cardiac and pulmonary diseases is not true cirrhosis, and I venture to suggest that in such cases there exists the superadded element of causation—lymph stasis, which is intimately concerned in the hypergenesis of connective tissue.†

In this connection, the case (No. 57) reported by Prof. Bryk

* A Clinical Treatise of Diseases of the Liver, vol. ii., p. 31.

† "The conclusion has been suggested to me, that tricuspid regurgitation plays a certain part in generating cirrhosis of the liver—difficult, though, it may be to readily understand how the necessary influence is exercised through obstruction in the circulation of the hepatic veins."—Walshe: Diseases of the Heart, p. 291. 1862.

(Oesterreich, Zeitschrift für Heilkunde, 1869, p. 469), is interesting. The patient, "a servant female, aged 20, had suffered from her 9th year with frequently recurring attacks of erysipelas of her left leg and foot, which, in her 16th year, eventuated in the establishment of an ulcer on the inner side of the ankle, followed by swelling and enlargement of the foot and leg, with horny and thorn-like excrescences upon the thickened and callous skin. The patient was anæmic. The heart was enlarged transversely, the area of dullness extending from the edge of the sternum beyond the nipple, and was accompanied by a systolic murmur at the apex; the liver extended the width of three fingers below the arch of the rib; the spleen as well as the submaxillary, and especially the left inguinal glands, were enlarged and indurated." The history of the case, as well as its course, apparently located the origin of the elephantiatic development in the lymphatic system. In view, however, of the facts previously presented, the insufficiency of the mitral valves cannot be wholly excluded as a factor in producing the stasis of lymph.*

The influence of respiration upon the movement of the contents of the thoracic duct seems very obvious, and is exercised in two ways, indirectly through its effect upon the blood circulation, and directly upon the current of the lymph or chyle. Colin, by means of a fistula, successfully established in the thoracic duct, observed that the intermittent flow of the chyle was synchronous with the movements of respiration, increasing with expiration and diminishing with inspiration. These mechanical effects are produced by variations of the intra-thoracic pressure upon the heart and blood-vessels. Küss (loc. cit., p. 314) has formulated these effects by estimating the blood pressure at the venous

* I append the following case observed in the clinic of Prof. Kussmaul:

"The patient, an old woman, suffered from cirrhosis of the liver and ascites. From the middle region of the abdomen a multitude of cord-like vessels of the thickness of quills, which looked like rows of pearls, were much twisted and prominent, proceeded downwards towards both inguinal regions; in the course they gradually flowed into one another, and ended in a few large vessels of the thickness of the little finger, which disappeared in the inguinal region. These vessels commenced on the middle and upper part of the abdomen in spots of different size, which were transparent and not prominent. They were probably vessels flattened by great tension, and might have been easily confounded with the cicatrices produced by pregnancy."

"On puncturing these vessels a yellow, opaline, neutral fluid escaped, which contained a trifling quantity of albumen and showed an acid reaction. The legs were slightly œdematous."—*Medical Times and Gazette*, vol. ii., 1861, p. 119.

summit at O or $^{1}|_{00}$, a condition necessary for normal circulation, and at the arterial summit at $^{25}|_{100}$, consequently, if by expiration a pressure of $^{15}|_{100}$ is produced in the thoracic cavity, the pressure at the venous summit would be increased to $^{16}|_{100}$ and stagnation in the venous system would ensue. By inspiration the pressure at the venous summit is reduced below O and acceleration of the current in the veins takes place. Under the same influence the aortic blood pressure sinks from $^{25}|_{100}$ to $^{15}|_{100}$ or $^{10}|_{100}$, and slackening of the arterial current follows. The chyle escapes through the fistula with greater force during expiration, because of the retardation of the current at its entrance into the vein, following as a necessary result of the venous stagnation, produced by augmentation of the intra-thoracic pressure. If the blood be prevented from entering the right auricle, the heart will cease to pulsate. By forced and prolonged expiratory movement the intra-thoracic pressure may be sufficiently increased to arrest the inflowing current, and consequently suspend the movements of the heart.

Recklinghausen was the first to recognize the absorptive function of the lymphatics of the diaphragm. Ludwig and Schweigger-Seidel amplified these investigations, by tracing the lymphatics of the centrum tendineum of the rabbit to the lymphatic vessels which run between the tendon bundles, but it remained for Klein* to trace the efferent trunks of those distributed upon the outer and anterior portion of each anterior quadrant of the diaphragm, "along the pars costalis of the diaphragm uniting on the posterior surface of the xiphoid cartilage on each side, in one or two larger vessels," which run along with the mammary vessels towards the sternal gland, "receiving along their course those lymphatics that come from the intercostal spaces. "The efferent trunk from the posterior quadrants is single on each side," and running towards the median line opens into the thoracic duct near where it emerges from the diaphragm. These efferent trunks communicate by anastomoses, and are formed of vessels having valves, which receive the superficial straight capillaries which lie in the pleural serosa and the deep straight capillaries which lie in the tendinous tissue of the diaphragm. Both kinds of straight capillaries communicate with each other at their crossings, the deep straight capillaries forming the vessels of communication between the superficial straight capil-

* Anatomy of the Lymphatic System, pp. 44 and 45.

laries and the lymphatic trunks that lie in the pleural serosa. Ludwig and Schweigger-Seidel attribute to these straight lymphatics the function of absorption, and maintain that during the inspiratory position of the diaphragm they are widely dilated, whereas during the expiratory act they are compressed. Consequently, adds Klein, the respiratory movements of the diaphragm act like a pump on its lymphatics. The straight lymphatics constitute the vessels of communication between the efferent vessels of the anterior and posterior quadrants, consequently the lymphatics of the diaphragm are discharged in two directions, one freely into the thoracic duct, the other less freely towards the sternal gland. Klein insists, furthermore, that the straight capillaries communicate, through the stomata, freely with the peritoneal cavity; consequently the mechanism represents a pump with two cylinders, acting simultaneously, "one corresponding to the pleural vessels of the anterior, the other to those of the posterior quadrants, while the pipe connecting the two cylinders is represented by the straight capillaries, and the piston tube by the vertical (stomata) lymphatic canals." A practical application of the influence of the movements of the diaphragm upon the motion of the contents of the thoracic duct may in the future conduce to a more satisfactory explanation of some of the consecutive disturbances of nutrition which so frequently accompany pregnancy, ascitic accumulations, and abdominal tumors.*

The lymphatics of the pleura pulmonis present a similar pump-like arrangement, the movements of which are consentaneous with the respiratory movements of the lungs. Klein (Anatomy of the Lymphatics of the Lung) has demonstrated a muscular coat of the pulmonary pleura, lying beneath the proper connective tissue matrix, and arranged in bundles with inter-fascicular meshes which communicate with the lymphatic vessels distributed on the pleural surface and with those running through the ligaments of the lungs towards the bronchial glands. Hence

* Haller supposed that in the contraction of the diaphragm its crura compressed the receptaculum and drove the chyle on, and when it was relaxed the crura became flaccid, and the chyle flowed through the lacteals because of the lesser resistance. These movements of the diaphragm correspond to the systole and diastole of the heart. Cruikshank doubted these alternate contractions and relaxation of the muscle of the diaphragm except during "sighing, yawning, coughing and straining."—Cruikshank, p. 169.

these spaces are in open continuity with the pleural cavity and with the lymph channels running towards the trunkal vessels. This muscular coat is found most abundant on those parts of the lung which participate most prominently in the respiratory movements, and, consequently, the mesh cavities expand with inspiratory and collapse with the expiratory movement. It must therefore follow that during expiration the contents of the meshes and vessels must be emptied towards the thoracic duct, and during inspiration they refill. The pleural lymphatics are intimately concerned in the absorption of effusions into the pleural cavity; in fact, it is only through these channels that the effused fluid can be returned to the blood vascular system. Hence the importance of preserving and restoring the normal movement of pulmonary expansion and contraction, to re-adjust, when disturbed, the regular movements of the pump-like action of the lymph vessels, and thus to promote and expedite the process of absorption of pleural effusions. The utility of abstraction of the fluid by aspiration, in whole or in part, does not consist exclusively in the mere evacuation of the liquid, perhaps in itself innocuous, but also in the removal of the impediments to the free and regular expansion and contraction of the lungs, and in the restoration of the absorptive function of the pleural lymphatics. Thoracentesis is then not merely a surgical expedient to obviate impending suffocation, but a valuable adjuvant to the proper therapeutic management of cases of pleural effusion, and obviously should not be deferred until the cavity is replete with the accumulation.

The anatomical arrangement of these several parts and the influence of the respiratory movements upon the current of the chyle, suggest the probable coöperation of the thoracic movements in the causation of certain morbid conditions, which have been referred to in the discussion of the influence of the heart circulation upon the locomotion of the chyle and lymph. Expiration retards the current flowing into the right auricle and hastens the out-flowing current at the aortic orifice. During inspiration the former is accelerated and the latter slackened. The contraction of the auricle occupies (Küss) from $\frac{1}{4}$ to $\frac{1}{5}$ of the total cycle of the heart movements, hence it must be in a state of repose or relaxation for from 45 to 48 minutes in each hour, or for 45 to 48 seconds during a minute. As a standard for illustration, during the same period (one minute) 15 expira-

tions must take place, and estimating the pulsations of the heart at 70 per minute, the pulse-respiration ratio must stand as 5 to 1, so that, notwithstanding the auricle is in a state of repose during 4 5ths of the total cycle of the heart movements, there occur 5 systoles to each respiration, and consequently the intra-thoracic pressure cannot present any considerable impediment to the heart circulation. If, however, the number of respirations, and consequently the number of expirations, be increased, venous stagnation may possibly ensue, and the movement of the fluid in the lymphatic vascular system would lose force at the summit of the lymphatic cone and acquire force at the base, because of the increased pressure upon the out-flowing arterial current. As a consequence, extravasation of lymph or chyle might take place. In this connection, the cases reported by Van Camp (35), Loraine (36), and Bergeret (41), become interesting. In the first case (35) there was impeded and insufficient inflation of the lungs, and consequent inequality in the variations of intra-thoracic pressure. The inspiratory movements were neither full nor complete, and pressure was prolonged. A milky ascites complicated the pulmonary disorder. In the case of M. Loraine, analogous disturbances of the respiratory movements caused the extravasation of a milky fluid into the abdominal cavity,; and in Bergeret's case the tuberculous infiltration of the lungs was accompanied with an ascites, the fluid being rich in albumen, fat, and the chlorides.

Lessened frequency of the respiration, probably, prolongs the duration of the intra-thoracic pressure, as the interval between the expiration and succeeding inspiration is lengthened; consequently, the influence upon the in-flowing venous current would be more marked, while, simultaneously, the continuance of the pressure upon the ventricle would impede its relaxation. In some morbid conditions involving diminished frequency of respiration, slowness of the heart movements and venous stagnation, it is not improbable that this succession of phenomena finds its origin in prolonged intra-thoracic pressure, or, in other words, in prolonged recession and partial fixation of the chest walls. Indirectly the chyle current would be influenced by the interrupted venous current, directly by compression of the thoracic duct, which force, acting upon a distended duct with unobstructed outlet, would hasten the onward movement, but prolonged would impede, perhaps prevent, at least during its continuance, its refilling.

It has almost grown into a maxim, that certain conformations of the chest which impede the complete inflation of the air cells, and statistics have amply demonstrated that posture which restricts the free expansion of the bony walls, predispose to pulmonary tuberculosis. The relation which these mechanical hindrances bear to lymph stasis may yet establish the connecting link which these remote agencies hold to the development of tubercle.

More than a century ago, R. Morton (Monro on Dropsy, p. 25) attributed phthisis to rupture of the lymphatics. Now the infection theory, first promulgated by Buhl, and popularized by Niemeyer, has become very generally accepted by investigators. Microscopists recognize the resemblance of the endothelial cells lining the alveolar walls to lymphatic tissue; some have traced the direct communication of these cells with the lymphatic plexus surrounding the air cells, others insist that the alveolar cavities are broad lymph spaces containing air; and pathologists of the present day are rapidly approaching the conclusion that tubercle is a lymphadenoma. Buhl* says tubercle "has its origin in the connective tissue which contains the juice canals and lymphatics, and particularly in the adventitia of the finer arteries and its lymph sheaths, and from these points it emerges a well organized structure. It shows in its finer organization an analogy with the lymphoid organs of the body, such as the Malpighian corpuscles of the spleen, and the lenticular glands of the intestines."

Sanderson insists that artificial tubercle is nothing more than hyperplasia of preëxisting adenoid tissue; Knauff that miliary tubercle represents the growth and multiplication of lymphoid elements; Klein and Kundrat that the miliary nodules on serous membranes are derived from germinating endothelium; Klebs that the young cells composing the tubercle knot originate in the proliferating endothelium of the lymphatic vessels; and Rindfleisch declares that the "miliary nodules are developed from the walls of the lymphatic canals through a proliferation of the endothelium." These views concerning the development of miliary tubercle from germinating or proliferating endothelium of lymphatic channels are not widely variant. Klein (loc. cit., p. 62), however, advances a step farther, and maintains "that on serous membranes in certain regions there is normally

* Inflammation of the Lungs, Tuberculosis and Consumption.—Eng. Trans., p. 112.

to be seen a germinating endothelium," and also, that adenoid tissue may be developed from the branched cells of the tissue. The process of normal germination is precisely similar to that in inflammation, that is, in both instances "the cells (Klein, p. 62) increase in size, become more polyhedral, the nuclei are observed to divide, and then the cells themselves." Both are nutritive processes, one associated with inflammatory, the other without such conditions—the connecting link between the tubercular formations and the inflammatory changes is infection. "Miliary tubercle (Buhl, loc. cit., p. 113) are situated in the connective tissue containing the lymphatics of the organ," are analogous in their histological formation with normal lymphoid organs," and in the lungs (p. 101) "occur everywhere, and only where there exists connective tissue, lymphatics and very fine arteries with lymph sheaths." They are hetero-plastic growths, owing their development to a certain vitiated condition of the tissue juices (p. 114), and only undergo decomposition when their development has been completed. Tubercle, most probably, always takes its origin from an epithelial surface, and is defined by Wagner to be a nodule, mainly composed of cytogenous tissue, with a concentric ring of connective tissue fibres, in the centre of which is one or more nodulated giant cells with numerous processes which, by free anastomosis, form a reticulum in the meshes of which are epitheloid and lymphoid cells.

These researches do not directly connect the tubercular development with lymph stasis, but with lymph infection, and a morbid formative action characterized by very active germination of lymphatic endothelia, which is most active in those localities where found most intense under perfectly normal conditions. According to Klein, the cell multiplication, whether the concomitant of acute, chronic, or tuberculous peritonitis, begins and progresses with greatest activity in those regions most richly supplied with lymphatic structures—tracts and nodules, which correspond histologically with the cortical and medullary portions of lymphatic glands, and which, like the glands, are engaged in the active production of lymphoid corpuscles. Klein also observed, under similar morbid conditions, active cell germination taking place about the stomata, forming, sometimes, bud-like processes (see fig. 4) which stretch freely over the surface; and Rindfleisch (p. 275) presents a diagram representing the development of a miliary tubercle nodule on the omentum

by proliferation of the endothelium, not unlike the one copied from Klein.

These observations suggest an analogy in the processes of normal production of lymph corpuscles and the morbid germination of lymphatic endothelium—each involving formative activity and a redundancy of formative elements. Scrofulosis of lymphatic glands (Rindfleisch, p. 201) is a partial hyperplasia, consisting in a multiplication and enlargement of the glandular elements, with subsequent arrest of nutrition and consequent caseous degeneration. Miliary nodules in the lungs (Rindfleisch, p. 415) are developed from the walls of preformed lymph vessels, which become irregularly distended and partially or wholly occluded by the masses of proliferated endothelial cells. The circulation of the lymph in the lymph capillaries and channels, thus affected, is necessarily disturbed, and while there may be no proof that such interruption of the current existed prior to or was concerned in the production of the tubercle nodule, the conclusion seems warranted that the subsequent decomposition is, in part, attributable to the arrest of the normal lymph current, and not wholly to the stagnation in the blood capillaries. In a scrofulous gland the lymph current ceases with the progress of the hyperplastic process, and the subsequent changes follow the arrest of nutrition.

M. Reynaud* has, perhaps, established the existence of a pulmonary lesion characterized by turgescense and dilatation of the pulmonary lymphatic vessels, not infrequently associated with cancer. "He found networks of dilated and engorged lymphatics on the posterior and lateral surfaces, and throughout the parenchyma. From the lobules in the impaired tissue a spurious liquid issued; there were found also semi-caseous granulations sufficient to produce tubercle; on pressing these granulations there exuded a cylinder of matter like that formed by pressing a sebaceous gland." Pulmonary angioleucitis may be either simple or consecutive. When consecutive it is eight times out of ten cancerous. Rarely it is consecutive and non-malignant, as illustrated by the following case reported by Dr. W. Moxon.†

Case 58. "Acute interstitial pneumonia or purulent inflammation of the lymphatics of the lungs."

* La Presse Médical Belge, March 29, 1874, p. 133.

† Trans. Path. Society, London, vol. xxiv., p. 20. 1873.

"The specimens shown consisted of the thoracic viscera, from the body of a woman who died in Guy's Hospital. She was admitted in a dying condition—too ill for careful examination. The chief symptoms were great difficulty of breathing, with much wheezing in respiration, slight dulness of right base, and moderate elevation of temperature."

"The left pleura contained a few ounces of turbid liquid, and the surface, especially of the upper lobe, was coated with recent lymph; under this lymph, and beneath the pleura in the sub-pleural tissue, were numerous wandering yellow lines forming a network. On comparison of this network with injected specimens of the lymphatics of the pleura they were found to correspond, and on examining the lines themselves they were found to be minute vessels full of pus." * * *

"The denser part of the upper lobe exhibited on section the appearance of 'complete mapping out and insulation of a large portion of the lobules' by clots and streaks of yellow color, like those in the sub-pleural tissue."

"The right pleura was adherent at base and the hinder and outer surfaces, but between the lung and mediastinum three ounces of sub-puriform liquid lay lodged. The disease here being evidently older, the upper lobe of this lung showed the same interlobular suppuration; in both lungs a moderate extent of early pneumonia accompanied these changes, but the pneumonia evidently extended from the interlobular suppuration. The lower lobe of the right lung was in a state of chronic atrophic induration." * * *

"The lymphatic glands at the root of the lung showed signs of extensive old disease, being in many instances coal-black, charged with fibrous tissue, and containing calcareous concretions. A pasty calcareous mass lay in the middle mediastinum."

* * * * *

The microscopic sections "showed in the slices of the interlobular pus deposits an entire absence of elastic lung tissue;" they were simply collections of pus within the lymphatic channels. Changes, somewhat analagous, in the pleura have been observed by Debove* and Charcot, associated with carcinoma of the mammæ. The lymphatics contained cancerous masses, which involved mainly the endothelium. Hillaire† has described a

* Progrès Médicale. 1874, No. 6.

† L'Union Méd., 1874, Nos. 53, 54, 55.

lymphangitis of the pleura and lungs connected with cancer of the stomach, and Cornil* asserts that in syphilitic lymphangitis of the lungs the endothelium of the lymphatics undergoes inflammatory changes.

The influence of partial immobility and rigid dilatation of the chest walls upon respiration, and eventually upon the blood and lymphatic vascular circulation, is illustrated in the various phenomena and consecutive changes exhibited in the production and progress of pulmonary emphysema. It matters not whether the cause be expiratory, inspiratory, nutritive, or "rigid dilatation of the chest walls," diminution of breathing space and destruction of blood capillaries necessarily ensue, resulting in deficient decarbonization and incomplete oxygenation of the blood, with consequent cardiac hypertrophy and venous engorgement. In the language of Niemeyer (Text Book of Prac. Med., vol. i., p. 120)—

"This obstructive engorgement of the great veins extends also to the thoracic duct. When the subclavian vein is filled to distention, the flow of lymph and chyle must encounter a resistance equal to that opposed to the current of any other vessel which empties into the subclavian. Nay, if lymph be the source of the fibrin in the blood, we see, upon simple physical grounds, why the blood of emphysematous patients is poor in fibrin, why the venous crasis presents hyperinosis and increase of fibrin. Restricted afflux of chyle must, moreover, prejudice nutrition both of the blood and of the entire organism. It is one of several causes which contribute to the general emaciation and to the premature marasmus of emphysematous persons; perhaps, too, it may account for the lack of albumen in the serum of the blood, which produces a tendency to the establishment of dropsical symptoms." The inadequate emptying of the thoracic duct (Hertz, Ziemssen's Cyclopedia, vol. v., p. 382) into the left subclavian vein, over-distended with blood, will, in cases of pulmonary emphysema, lead to impoverishment of the blood in so far as concerns such of its elements as are derived from the lymph, the colorless blood corpuscles, fibrin and albumen.

The disturbance of the appetite and of digestion, which so constantly accompany valvular lesions of the heart, are not, as a rule, very manifest prior to dilatation of the right side of the

* L'Union Méd., No. 81, cited by Klein.

heart, and have been usually ascribed to the venous obstruction which the latter condition involves, independently of any consideration of the influence of such obstruction upon the current and exit of the chyle. It may not be inappropriate in the further progress of this discussion, to refer to the relation which the stagnation of the chyle in the thoracic duct and in the lacteals may bear to these dyspeptic phenomena.*

The influence of recession, partial immobility or interrupted expansion of the chest walls, upon the blood current, and, indirectly, upon the lymphatic vascular circulation, has not been, to my knowledge, studied. Yet the not infrequent association of distortion of the chest walls, which occurs in rickets, with hydrocephalus, suggests a probable connection between the mechanical disturbance of the thoracic movements and the transudation of hydrocephalic fluid. The accepted theory attributes this transudation to venous hyperæmia resulting from impeded efflux of blood from the cranial cavity. Soemmerring (loc. cit., par. 28) ascribed dropsy of the brain to languidness of the absorbent vessels, or to congestion, which either set up an inflammatory process, or, by the consequent fullness of the blood-vessels, compressed the lymphatics in the foramen lacerum or carotid canal; and Rindfleisch (loc. cit., p. 630) suggests that hydrocephalic fluid may be a quantitative excess of the liquor cerebro-spinalis, which, according to its general properties and composition, is a lymphous fluid (Flint, loc. cit., vol. iv., p. 264). C. Schmidt called attention to the chemical nature of the fluid from hydrocephalus internus, and concluded it was "not a mere filtration of the serum of the blood, but a peculiar secretion, in the formation of which the salts of the corpuscles of the blood participated."

In the substance of the brain and spinal cord the lymphatics (Robin) are invaginating, the blood capillaries floating in the fluid contained in them, thus affording (Flint) the most favorable anatomical arrangement for the free interchange of the liquid portions of the blood and lymph. They are without valves, and hence, no impediment is offered to the oscillatory and reflux movements of the lymph, and, in the event of any obstruction taking place, accumulation may be obviated by the general diffusion of the fluid through the anastomosing branches. Nevertheless ectasia of the lymph vessels of the brain may take place,

* Flint, Practice of Medicine, 1868, p. 321.

as is exemplified in the following case, reported by Dr. Heinrich Obersteiner, jun.

Case 59.* "Upon section of the medulla oblongata of a syphilitic patient, Obersteiner found behind the deep fibres of the pons a tumor, scarcely pea size, irregularly round, and having the appearance of a gumma or cerebral tubercle. In the immediate vicinity of the new formation, in some places not distant more than one half centim., small, round apertures were observed in the medulla substance, some as large as a pin's head."

Microscopic Examination. "Cheesy in its interior, its peripheral portion consisted of small cells, with distinct round nuclei, which could be followed far into the mass of healthy nerve tissue, partly between the bundles of nerve fibres, and partly also in the peri-vascular lymph spaces. In regard to the latter it was observed, that besides the perfectly sound ones, which, in whatever direction the section was made, probably constituted the majority, there were present such which formed a shorter or longer canal, which usually was swelled at its end in the form of a button; to this bulged out space a vessel was frequently seen to advance and there end abruptly."

[Fig. 25.]

"Tissue lacunæ from the surrounding of a gumma syphilitica in the pons; the lacunæ, *a*, is bridged over in three places; a vessel advances at one end. At *b*, beginning of tumor."

"The smallest spaces were either perfectly round, as if the substance of the medulla had been pierced by a fine needle, just visible under the highest power, or they represented (see fig. 26) a bulging of the peri-vascular spaces, in which the vessel was still found, and which at the commencement presented a long oval form."

[Fig. 26.]

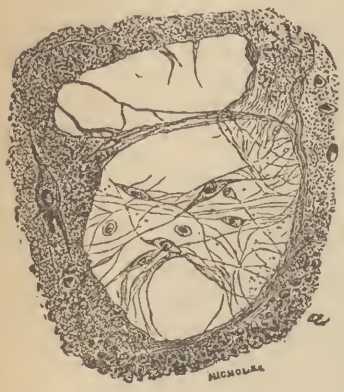
"Commencing dilatation of a peri-vascular space. Same specimen."

"Upon transverse section no true wall could be recognized in any of these cysts, not even in the largest, but occasionally a view of a thin, delicate membrane

* Virchow's Archiv., vol. lv., p. 318.

could be obtained, which was composed of spindle shaped cells in various stages of development, and of numerous fine fibres, apparently of the nature of connective-tissue, and resembling those delicate membranes which are found as boundaries of most cysts in the brain."

[Fig. 27.]



"Partly bridged over lacunæ. Commencement of tumor at *a*. From the same specimen."

The elements of the tumor accumulated within the peri-vascular spaces, in many places obstructing the flow of the lymph, and consequently produced dilatation of the space behind. The lacunæ could be traced back to a dilated lymph space, which, as exhibited in its initiatory condition in fig. 26, shows that the blood-vessel in the interior is yet completely preserved; but in the further progress of the dilatation (fig. 25) no central vessel is discovered, and in places a vessel could be traced up to the lacunæ and there ended, probably having perished.

Golgi has collected the diseases of the peri-vascular lymph vessels, and thinks the œdematous condition of the brain may find its cause in the pressure of an increased quantity of fluid in these spaces, which would also produce dilatation of the space, and probably of the communicating channel.* According to Schwalbe, "the arachnoidean space (Wagner) of the brain is a lymph space, which communicates with the lymphatic vessels and glands of the neck through the jugular foramen." Prof. His has demonstrated the presence of peri-vascular lymph canals and networks of lymph passages in the substance of the pia mater, and Dr. Bastian† maintains that tubercular meningitis is an inflammation of the lymphatics of the brain and pia mater.

* L. Clarke has described a case of general paralysis, in which numerous cavities were found in the white substance of the brain, so that they presented the appearance of Swiss cheese or bread; besides, in other places, these lacunæ were found particularly numerous in the pons, equal in size to a small pea, and also, not unfrequently containing in their centre a blood-vessel. Clarke therefore believes himself justified in regarding the cavities as dilated peri-vascular canals.—Jour. Med. Soc., July, 1870; and Med. Chir. Review, p. 193, 1870.

† Edinburg Med. Jour., vol. xii., Jan. and June, 1867, pp. 879, 881:

INJURIES OF THE HEAD.

BY SAMUEL LOGAN, M.D.

(Read before the N. O. Medical and Surgical Association, June, 1877.)

No. 1.

Injuries of the Soft Parts, and Contusion of the Bones of the Skull.

In order to understand the peculiarities appertaining to the injuries of any portion of the body, it is important to bear in mind its anatomical characteristics; and this proposition applies with special force to a consideration of those portions containing the more important organs, as the head, the chest, and the abdomen.

It will therefore be appropriate to preface this paper with a succinct review of the surgical anatomy of the head, exclusive of the face, as it is not proposed to discuss the injuries of the latter, which would be attempting to go over more ground than would be appropriate to the occasion.

It will perhaps be more interesting, in discussing the anatomical peculiarities of the different tissues and structures which enter into the construction of the skull and its important enclosures, to allude at the same time to the bearings of such peculiarities on the traumatic pathology of the region.

In the first place the skin, covered with hair follicles and sebaceous and sweat glands, differs but little from that covering the remainder of the body in its structure, though it does differ markedly in the manner of its connection with the subjacent parts. The skin in every other portion of the body is tied to the parts beneath by a loose connective tissue, which permits it to move freely and in a great measure independently of the parts beneath. In the head, on the contrary, the subcutaneous connective tissue is of a very much denser character, tying the dermis tightly to the occipito-frontalis muscle. The scalp is very movable over the bones, though it is not the skin alone which moves, but all the layers, including the muscle just mentioned.

The result of this anatomical peculiarity is seen in comparatively slight injuries. The numerous blood-vessels supplying the highly vascular skin run through this dense subcutaneous connective tissue, and are readily ruptured from even slight blows.

The resultant extravasation cannot readily diffuse itself, as elsewhere; but, the skin being elastic and yielding to the pressure, a rounded circumscribed tumor is rapidly formed.

Next, under the dense subcutaneous connective tissue, and indeed, intimately attached to it, we have, over the top of the head, the occipito-frontalis muscles, and on the sides the strong temporal fascia covering the temporal muscle, with a corresponding structure overlying the rudimentary muscles of the external ear. This strong fascia, with the subjacent muscles, affords a great protection to the lateral regions of the skull.

Next comes a comparatively loose layer of connective tissue, very liberally supplied with vessels, and permitting free movement of the soft parts over the periosteum and bones. In this loose layer very extensive and widely diffused sanguineous, serous, or purulent infiltration may occur; and, since the nutrition of the periosteum depends greatly on the vascular system permeating this layer, such infiltrations, cutting off the supply of blood from that source, are apt to be followed by exfoliation with all its more or less dangerous concomitants or sequences.

Next we have the bony vault, with its admirably constructed system of arches and buttresses, so well adapted to protect the great nerve centre within, its eight bones being joined together with more or less yielding sutures, and each composed of an outer thin and dense layer, an inner denser and stronger layer, and a yielding diploic structure between the two—all so wisely designed to decompose force and thus prevent concussion. Did we have a solid metallic-like case for our brain, vibrations from the mere tap of a thimble might produce such an amount of cerebral concussion as to knock down the strongest man.

At this point we must not forget certain differences which obtain between the skull of the adult and that of the child. In the latter there is no distinct diploic layer, and the ossification being only partial the bones are more yielding; while in the very young the fontanelles being still open, also permit of still greater yielding. Compression of the brain requiring trephining is thus much less apt to occur in the child. Again: the dura mater of the child is less easily detached from the bone, and being also more delicate, is much more apt to be punctured by a trephine. Indeed, what with the softness of the bones, the absence of the diploic space, and the more intimate connection of the dura mater with the bone, the operation of trephining becomes in so far the

more difficult of execution in the young. Fortunately it is much less frequently required, as already explained.

The intimate communication obtaining between the extra- and intra-cranial circulation, as well as that belonging to the diploic structure of the bones, must also be borne in mind, in order to appreciate certain dangers appertaining more especially to the traumatic pathology of this region. Diffuse inflammations of all kinds are thereby rendered more dangerous, and cerebral thrombosis and general septicæmia are to be apprehended from even slight injuries.

The intra-cranial circulation differs from the general plan in this respect: the large veins and the large arteries, with indeed, the greater majority of those of all sizes, are situated independently and often widely apart; the veins, as a rule, being located in the folds of dura mater designated as sinuses, while the arteries penetrate this membrane from below, and diminish in size as they ascend. Again: in other portions of the body, with few exceptions, even the smallest arteries and veins are protected by a connective tissue envelope, or sheath. Not so in the case of those ramifications of the cerebral vessels which run into the brain substance. They leave behind them their fibrous coat, and are consequently much more liable to rupture in mere concussion of the brain substance. I am inclined to regard the phenomena of concussion as in a great measure dependent on the rupture of some of these smaller vessels—as due to a slight paralysis, more or less temporary, dependent on minute apoplectic extravasation. In two cases of concussion in which death occurred from other causes, Hewitt found little red spots of extravasation dotting the cut surfaces of the brain.

Having thus refreshed our memory as to the anatomical points, let us now consider the various forms of injury to which the head is liable. It will be convenient to divide our subject as follows:

1st. Injuries of the scalp.

2d. Injuries of the bones with and without injuries of the scalp.

3d. Injuries of the encephalon with and without injuries of the bone and scalp.

1ST.—INJURIES OF THE SCALP.

These usually resolve themselves into two chief classes, as elsewhere, *i. e.*, *contusions* and *wounds*.

Contusions of the Scalp. These are quite common, their importance varying very much in accordance with the precise location and the accompanying extravasation. If such extravasation be located in the dense areolar tissue just beneath the skin, a distinctly circumscribed prominent tumor is promptly formed. This is of little consequence, and is soon absorbed. As the circumference of such an extravasation is necessarily more exposed to the action of the absorbents, the more fluid portion is soon taken up, leaving a somewhat hard rim of fibrine. The central mass, on the contrary, retains its original soft consistence, or perhaps even becomes more fluid from a watery effusion, the result of the greater or less obstruction of the venous current produced by the pressure of the hard rim of fibrine just mentioned. I offer this as, to my mind, a more reasonable explanation of this phenomenon than any of those I have as yet read. It has attracted the attention of writers and of practical surgeons, not because of its intrinsic importance, but because it may be unguardedly misinterpreted, and thus lead to an important error in diagnosis. The softer centre of such an extravasation might be mistaken for a fracture with depression of bone, the harder periphery feeling not unlike the prominent edge around a depression. This mistake will be best avoided by observing, on firm pressure in the centre, that the bone there felt is no lower than the surface outside the hard rim of fibrine, which latter is thus seen to stand out like a ring above the general surface, not level with the surrounding bone, as would be the case in fracture with depression. The same condition may also be mistaken for an abscess, but the absence of inflammatory symptoms and its gradual disappearance will suffice to enable us to discriminate between the two.

As already remarked, these subcutaneous contusions are of little importance when unaccompanied with more deeply-seated injuries, and require absolutely no treatment; unless, indeed, the patient need a placebo, in which case some cooling lotion may be applied.

If, however, the contusion, with its accompanying extravasation, involve the parts immediately external to the periosteum, we have a much more serious case. Such an extravasation, in the first place, is far more diffused and extensive, the blood-vessels torn being usually larger, and the connective tissue far more open. In the second place, the free extravasation is more

or less liable to so interfere with the circulation of the blood through the numerous and large vessels as to cut off the supply to the subjacent periosteum, thus leading to exfoliation and its sometimes dangerous results.

Again: should suppuration, putrefaction of blood, and effusions or exfoliation occur as a result, so intimate is the connection of the extra- and intra-cranial circulation, more particularly so far as the veins are concerned, that cerebral thrombosis, embolism, and septicæmia, with or without cerebral phlebitis, may result, followed by all their evil train of consequences.

The *diagnosis* of such a contusion with its accompanying extravasation is easily made. There is a boggy and more or less diffused swelling evidently covered by the whole thickness of the scalp.

The *treatment* depends on the tendencies developed. Very large extravasations so located may be often gradually absorbed. If, then, we see that day by day the tumefaction subsides under simple treatment with cooling lotions, or perhaps the administration of an active cathartic in addition, in apparently severe cases, nothing more is to be done. If the swelling continues, on the contrary, to increase in thickness of periphery, and especially if this increase be rapid, it is likely that some large vessel is feeding it. This is a rare but possible contingency. As a rule, the clotting of the blood, with the pressure exerted by the extravasation itself, stops the hemorrhage after awhile. If this fails to occur, it may be possible to locate the bleeding vessel, and to arrest its circulation by a compress and bandage, or by the application of a truss pad over the probable location. If this fails, and the hæmatoma still continues to enlarge, I would not hesitate to treat it as I would a traumatic aneurism, which, in reality, it is. I would lay it open and seek the bleeding vessel. With the great advantages afforded by the antiseptic treatment of wounds, such an operation is shorn of nearly all its risks. We are not as much afraid of scalp wounds now as we were fifteen or twenty years ago. I need hardly say that should inflammatory symptoms indicate that suppuration is occurring, the knife, followed by antiseptic syringing, drainage and antiseptic dressings, should be resorted to without delay.

Wounds of the Scalp. These partake of the peculiarities of wounds elsewhere, and present the same varieties of *simple wounds*, *contused* and *lacerated wounds*, etc. Sometimes an in-

cised wound will continue to bleed quite freely, and as the injured vessel retreats under the pericranium, it may be very difficult to find it. It may then become necessary to follow the plan advised by Prof. F. H Hamilton, in his recent work on Surgery, namely, to slit up the scalp at right angles to the side of the wound from which the bleeding proceeds; then turn the flap up, and look for the vessel from its deeper surface. There is still some difference among surgeons as to the propriety of using sutures in scalp wounds. It is asserted by many excellent authorities that their use renders the patient more liable to erysipelas. But again, according to my experience, the antiseptic treatment removes this danger in so great a degree as to nullify such objections to this means of hastening the closure of the wound. If the wound be too large to be readily held together by adhesive plaster, I usually sew it up, after washing with carbolized water, and dress it with lint soaked in carbolized oil. If the slightest tendency towards unhealthy action, or the accumulation of purulent or other fluids presents itself, the sutures should be promptly removed, and the wound treated for secondary union.

A contused or lacerated wound must be treated on the strictly antiseptic plan, just as we would treat a similar wound elsewhere. But we must ever bear in mind that such injuries are always to be regarded as requiring great watchfulness and the utmost cleanliness, in view of the dangerously intimate vascular relation to the deeper parts already more than once mentioned.

2d.—Injuries of Bone with and without Injury of Scalp.

Injuries of the bones, as of the soft parts, may be divided into contusions and wounds, the wound of the bone, however, being called a *fracture.*

Contusions of bone in general have not received the degree of attention which in the opinion of the writer they deserve. They are really, in many cases, the starting points for pathological processes whose ulterior results may become serious. Destructive epiphysal caries, with joint complications supervening and dependent on it; exfoliations and other more extensive necroses, to say nothing of bone abscesses, tumors, etc., not unfrequently find their essential starting points in seemingly trivial bone contusions. But if the tendencies of bone contusions in

general have been in a measure overlooked by the profession, this cannot be said to be the case when the bones of the cranium are involved. Their dangerous character, when occurring in this portion of the skeleton, is universally recognized.

The bone may be seriously bruised and the scalp escape uninjured, in which case the diploic layer would be the portion most apt to suffer; or the scalp may be torn open, and the bone merely crushed, in which case the outer layer is most probably the chief seat of injury. In the latter case the results are, as a rule, less serious than in the former—in as much as exfoliation is less serious than endostitis, in the skull even more than elsewhere.

But in order to appreciate the pathological tendencies of such cases, we must have a clear conception of what is meant by the term contusion. After careful consideration of the subject, it seems to me that the best conception of the true condition present in any case of contusion, in either the soft parts or the bone, may be formulated in a condensed form in the following proposition. A contusion is a wound, or solution of continuity, involving many of the finer anatomical elements of a part, a wound being a solution of continuity of all the anatomical elements of a given locality. We see, then, that a contusion of the soft parts is really a partial wound; a contusion in the bony tissue a partial fracture. Clinical observation abundantly demonstrates the truth of this definition, even if its correctness were not almost, we may say, self-evident. In contusions, as in wounds, we have extravasation, which is identical with hemorrhage, except that the blood fails to escape from the body; we have effusion of liquor sanguine, and the resultant reparative processes in one instance, or purulent or other degenerative changes in another, as the case may be; we have in both an area of increased vascular action around the injury in varying degrees of intensity, accompanied by the same modifications of the nutritive processes, which we term traumatic inflammation. The two conditions are the same in kind—they only differ in degree.

In contusion of the bones of the skull, accompanied by a wound of the soft parts, the injury is most apt to involve the outer table. If the periosteum be much bruised or torn from the bone, exfoliation may occur; though, in very many cases, under proper treatment, the deeper vascular connections, which are numerous and active, suffice to preserve the vitality of the parts involved. The contusion, however, is not always limited to the outer table.

Should the diploic layer be also affected, the vitality of the outer table is in far greater jeopardy, as the circulation from below is interfered with to a greater or less degree.

But exfoliation is one of the least dangers in these cases: embolism and its dangerous results, meningitis and cerebral abscesses, chronic hyperplasia, or even tumors in the dura mater, opposite the injury, with or without a corresponding increase in the thickness of the inner table—one or more of these more or less dangerous results may ensue.

Contusion involving the inner table of the bones alone can hardly occur. It is so brittle that fracture would almost invariably be the result.

Symptoms.

It is difficult to specify any precise symptoms which would indicate the presence of contusion of a cranial bone; but in all serious, and even in apparently slight injuries, we should suspect it and treat the patient accordingly. It is these cases especially that illustrate the truth of an aphorism accepted by all prudent surgeons, namely, that all injuries of the head should be considered serious. If the seat of injury become and continue quite tender on pressure; if a hard persistent swelling develop itself, and—in case the soft parts are opened—the periosteum appear puffed up; and if, as the case develops, symptoms of any of the above mentioned possible results of contusion present themselves—we may venture the diagnosis of contusion.

Treatment.

Were it not for the special dangers which threaten in all cases of injury to the skull, we would say that here, as in contusions of the soft part, very little treatment is required. The general treatment appropriate for all injuries of the skull is all that is called for in these cases.

The patient should avoid all that might excite the vascular or the nervous system. He should rest from all labor, physical or mental. His food should be somewhat restricted in quantity and of the plainest character, and his bowels should be kept relaxed. Any threatening symptoms should be appropriately met, and the above treatment should be continued till all local tenderness has disappeared. The patient should return to his

usual vocation and mode of living gradually and cautiously, and be warned to give early heed to any threatening symptoms which may present themselves.

(To be continued.)

TUBERCULOSIS.

BY CHARLES G. POLK, M.D., PHAR. D.

Continued from September No.

Considering the relation sustained by the phosphoids to tuberculosis, we have had ample evidence, I think, of the relation the phosphoids sustain to nerve power, and also of the dependence of all the vital functions upon nerve influence. There are also potent reasons for accepting the view that the plasticity of the exudations entering into the formation of tissues and organs, as also the activity of the functions performed by them, instead of being entirely due to their fibrin, are, in a very large degree, dependent upon the vitalizing influence of the phosphates. But phosphoric acid also sustains an important office in respiration as also an equalizer of the carbonic acid of the blood. This office is thus described by Liebig. He says that "there is no known salt the chemical character of which approaches more clearly the serum of the blood than the phosphate of sodium. There is none more fitted for the absorption and entire removal of carbonic acid from the organism. When carbonic acid is taken up by the blood, there is established between the phosphoric and carbonic acids an equilibrium similar to that existing in the juice of the flesh between the lactic and the phosphoric acids. In the same way as these divide between them the potassium of the juice, so do the carbonic acid and the phosphoric acid divide between them the sodium of the blood.

"If we assume that the carbonic acid seizes a portion of the sodium, we may imagine that the phosphoric acid previously combined with this portion of base is expelled from the place it originally occupied and thus set free, but it does not on that account separate from the compound. We can say carbonic acid is changed into carbonate of sodium only when the free phosphoric acid has been removed and employed in another

quarter, but in point of fact this phosphoric acid always displays its presence, and retains unimpaired its power of combining with the sodium. The slightest cause coming to the aid of its affinity so as to give it the preponderance suffices to displace the carbonic acid and reproduce the original compound. Agitation with air, the spontaneous evaporation of the water in which the compound is dissolved, diminution of the atmospheric pressure, all these causes, which have no effect in neutral carbonate of sodium, produce decomposition, and cause the separation of the carbonic acid taken up by the sodium phosphate in the blood. In this manner the carbonic acid is kept at a constant value. If more carbonic acid enters the blood from the body, more phosphoric acid is set free in proportion, and thereby a more complete separation of the carbonic acid in the lungs is secured. If more sodium is taken up, then a part of the carbonic acid which would otherwise have escaped by the lungs is eliminated from the system by the kidneys, in the form of the carbonate of sodium.

"At first thought the above may seem to be without practical reference, but when we consider the facts here presented with several known facts regarding the pathology of tuberculosis, the relation between them becomes evident. Prof. Aitken, explaining the causes and process of tyrosis, specifies a constitutional predisposition, the evidence of which is based on the fact that in some animals all ordinary pus undergoes this change, as in rabbits and sheep. This occurs by the abstraction of the watery part of the pus, or of the new material, by absorption; a theory also supported by the occurrence of the change in those animals which rarely drink water, and take little or no liquid food, their urine being highly concentrated and their excrement hard and dry; local anomaly of structure or function, such as may be expressed in the greatest intensity in the lungs, as, for example, a relatively small amount of blood in the pulmonary tissues. Hence certain diseases which keep the lungs over-supplied with blood have been observed to be antagonistic to phthisis, by overflow of blood, especially from the pulmonary veins, as diseases of the heart and great vessels. On the other hand, phthisis has been noticed as concurrent with stenosis of the pulmonary artery. The rarity of pulmonary phthisis in mountainous countries, and in persons whose chests have been thoroughly expanded, points in the same direction; as also the immunity of those who suffer from chronic bronchitis; and the opposite effect

of pleuritic compression as tending to induce phthisis"—Science and Practice of Medicine, vol. ii., pages 545 and 546.

We are thus brought to the consideration of the very condition most favorable for the separation of the carbonic acid from the sodium and its involution into the system. When we consider the consequences of this involution of carbonic acid and its influence in depressing the nerve power and deranging the entire processes of nutrition, we obtain an insight into the morbid processes of tuberculosis.

If abstraction of water gives the phosphoric acid power to expel the carbonic acid from its association with the sodium, and dryness of the pulmonary structures be one of the essential conditions of tyrosis and a concurring one in tubercular deposit, phosphoric acid in the formula with sodium assumes the position of an exciting and determining cause. In this case, however, we do not reach the initial lesion. The dryness of the pulmonary tract deranges the relation of the acids with the sodium, but this very dryness may result from imperfect expansion and want of exercise of the pulmonary parenchyma. Depressed nerve power will lead to this very condition; in fact, except in stenosis of the pulmonary artery, it sustains the position of an essentiality.

The relation depressed nerve power sustains to the development of tubercle, may be expressed in five aphorisms:

First. It reduces the capacity of the chest and prevents a requisite supply of oxygen from entering the lungs, induces the dryness referred to, and as I have already observed, breaks up the connection between phosphoric acid and the carbonate of sodium, and thus liberates the previously combined carbonic acid and favors its introduction into the blood, and thus in time becomes an efficient ally of the already existing morbid condition; depresses in a more decided degree the nerve centres, and favors in this manner the development of every lesion that obtains in tubercular disintegration.

Second. It prevents the formation of cells sufficiently vitalized for cell development after the elimination of the blood serum from the blood-vessels; consequently we find the exudation of the liquor sanguinis so low in organizable elements as to constitute a sick and dying element—cacoplastic or aplastic in its nature, ready to cascate and become the focus of disorganization.

Third. Imperfect cell formation is the consequence of malas-

similation; the chyme and chyle are improperly elaborated. The proper ratio between their constituents is deranged; the starchy elements are not transferred properly into glucose, and the fatty and oily elements not properly emulsified; butyric acid is generated largely *instead*, and the albuminous elements which are relatively in excess, are too firmly held in solution for assimilation by the butyric acid thus generated.

Fourth. The impaired vital capacity prevents the formation of healthy secretion in the lining membrane of the lungs; the secretion partaking of the general vital deterioration, the lining membrane of the cells is imperfectly formed. This membrane, it will be remembered, consists of a layer of cells, and like other secreting membranes, is being continually thrown off and becoming mingled with the tubercular matter as it forms in the lungs, and thus furnishing food for the morbid processes.

Another fact in this connection somewhat suggestive, is, that the ganglionic nervous system especially presides over and directs the functions of all the secreting membranes.

Fifth. Whatever impairs the nervous functions of the ganglionic nervous system will derange the pulmonary capillaries, consequently we have relaxation, and a large amount of exudation into the air cells results. In this exudation is an abundance of leucocytes, or as Williams prefers to call them, sarcophytes, which here cease their amœboid motion, die, shrivel, and become corpuscular tubercular cells, which I will prove in considering the morbid anatomy of tubercular lesions.

In these five aphorisms are embodied many facts which relate both to the organism and function sustaining properties of phosphorus and the consequences of its deficiency on the one hand, and the origin and development of tuberculosis on the other. We here see cause and effect very intimately linked together. We find that phosphorus as a protagon, the very food sustainer, prompter and essentiality of nerve structure and nerve function. Again, we find that vital force is displayed through the nervous system, that it is the great medium of communication between the etherial mysterious essence—mind, and the organic functions; that both the electric battery and the wire must be in perfect condition or the result is abnormal; the vital knot—the throne of life—must be efficient, and also the nerves through which it communicates must be ready and healthy, or the resulting communication will be derangement of function.

Notwithstanding the apparent independence displayed by the ganglionic nervous system in its supervision and direction of secretion, digestion, absorption, assimilation, appropriation, sanguification—in fact the entire processes of nutrition, we find nevertheless, that all these are modified by mental impressions. There is no better established fact than that a shock upon the mind vibrates throughout the entire processes of life. Grief will arrest the series of the entire nutritive processes and induce severe diarrhœa, and even inflammation of the chylopoietic viscera. Mind and body are indeed closely inter-related. They are mutually dependent upon each other. Abnormality of brain will induce abnormality of body. The nerves being the channel by which the brain sends forth its power, and also the medium through which the brain is informed of physical conditions. Without phosphorus, says Liebig, there is no thought, and if there be no thought there can be no brain or nerve power, consequently whatever modifies the formula of this element must also modify intellectuality; man's emotional nature—his passions, his desires, the acts of voluntary motion, and his organic functions. The protagon, the combination of hypophosphorous acid with glycerine and olein, and alkaline bases, we have numerous reasons for believing, are the types of phosphorus which act as the nutrient and function sustaining property of the brain and nervous system. A modification in either its chemical relations or its quantity, must necessarily derange the functions over which the nervous system especially presides. Its deficiency in the anterior and superior lobes of the cerebrum would modify intellectuality, while a similar condition in the medulla oblongata, cerebellum, and inferior portion of the cerebrum, would manifest the effect in the organic functions. Now, if we could modify all these conditions, if we could supply each organ and tissue with the very formula it requires of phosphorus, we no doubt would have attained a great advance in therapeutics. Monobasic acids may prove tonic, but they are destitute of organismal power. Monobasic hypophosphites of lime and sodium are only valuable tonics. Beyond this limit they possess no power. They cannot unite with nitrogenous elements to form the compounds of the system. Phosphorus, however, very slightly oxydized, in the presence of oil, glycerine and extract of beef, will form first a nascent tribasic hypophosphorous acid, which will unite with three units of a base, forming chemically

the protagon we find in the brain, or a hypophosphorous acid identical with cerebric acid.

Treatment.

A disease so intimately associated with nutrition, and having its prime factor in the morphological processes by which cell life is perpetuated, must be combatted by those measures which most effectually aid the morphological process by which food is converted into blood and the granule is created, and by which it is stimulated to evolution into corpuscles, and then into the composition of organs and structures endowed with vital power.

Whatever impairs digestion may be enumerated as a predisposing cause. Sedentary habits are productive of indigestion; sedentary habits, then, predispose to tubercular disease, and must not be overlooked in the management of both those predisposed to, as well as those in which the physician encounters the active developed disease. My experience has been, that close confinement in a counting room will frequently neutralize all the benefit which can accrue from any medicines which may be given. Time and again I have used the greatest care in observing and counteracting other unfavorable circumstances, and yet I have been thwarted in every attempt to confer any positive advantage on my patients. Upon securing, however, relaxation from the care and confinement of the counting room, with a trip into the country a few weeks, the same therapeutical management has often accomplished a wonderful transition. One patient, last summer, who rapidly declined in defiance of the remedial agents I employed, gained thirty pounds in less than two months, and returned almost free from cough and the lung trouble completely in abeyance. Unless we can secure outdoor exercise for our patients, our chances of curing or even retarding tuberculosis are very much lessened. Exercise indoors does not compensate for outdoor exercise. The exercise should be of a kind that thoroughly expands the lungs and forces air into the apices. Walking, riding, especially horseback riding, exert a decided influence in this direction. I have already alluded to the fact, that one of the most obvious indications of tubercular lung disease is imperfect expansion of the lungs and quiescence in the apices, the air scarcely penetrating to bronchial capillaries, and this quiescence resulting from impaired nerve

power. Whatever renovates nerve power induces fuller and more complete inspiration, and forces the air to every portion of the lung. Whatever forces the air to every air cell, obviates that tendency to dryness which Aitken has shown to be an essential condition of tyrosis. Whatever condition favors dryness, we have seen, tends to break up the connection between the sodium and the carbonic and phosphoric acids, and thus favors nerve depression. Starvation also favors the deposit of granules and leucocytes, if we accept the exudation theory; or, if we accept Sanderson's idea that tubercle is only an overgrowth of adenoid tissue, we can understand how devitalized granules and leucocytes may fill up and produce the morbid growth we term tubercle. Outdoor exercise, especially of that character which thoroughly expands the lungs and forces the air to every lobe and lobule, must not be neglected—it is an indispensable object of treatment. Daily practice in deep and forced inspiration is also of especial value; it aids advantages accruing from properly regulated exercise. Professor Physick cured himself by driving around this city without springs.

Unwholesome or insufficient amount of food, by deranging the digestive organs or not supplying the proper pabulum, is very destructive to health, and incompatible with vigor. In young persons whose systems have not attained maturity, inadequate nourishment is a fruitful source of tuberculosis— outside of hereditary influences it is probably the most prolific fountain of this stream of death. While insufficient supply of food may be incapable of developing tuberculosis in the adult, there is but little doubt but that it will generate it de novo in the growing child; this, however, is an accepted fact of tubercular ætiology. The diet which, in my experience, has been the most satisfactory in the management of phthisical patients, consists of eggs, oysters—food rich in phosphoids; and if my theory be correct, may they not contribute phosphorus in the proper formula to be assimilated into the system to restore the organic nervous energy, by which the functions of organic nerve life may be vigorously performed, and the digestive aberration—imperfect emulsion of fats, excess of the albuminous over the fatty elements, and malassimilation of the alkaline phosphates—modified, if not remedied.

Milk is another article of food in which I have much confidence. To secure its best effect it should be given as Niemeyer

directs, fresh from the cow, so as to secure the entire constituents of the milk; the loss of the cream by skimming seems to deprive it in a great measure of its dietetic merit. The value of the milk resides in a combination of the especial elements of nutrition—oleo-hypophosphorous acid in union with alkaline and mineral bases, nicely adjusted to supply the wants of the organism. The alkaloidal character of the hypophosphorous acid finds analogies in the brain and in wheat. Mare's milk possesses this in a greater degree than does the cow's milk, and in about the same proportion that it exists in human milk. In addition to these, saccharine vegetables may be eaten, but only as freely as the integrity of the digestive function will permit, because any and every thing which deranges the stomach or interferes with digestion will be highly detrimental. Vegetable food unquestionably contributes more to the development of animal heat than does flesh of animals. Malt extracts are highly esteemed in Europe both as a food and as a medicine, and are gradually winning favor in this country. It may be invidious to decide in preference of one over the other manufactures, and I am not sure I have any right to do so, because my experience has been limited almost entirely to Lœflund's German Malt, and it is only of this preparation that I am entitled to a word of praise or censure. In my hands Lœflund's Malt Extract has proved very satisfactory; it is almost always kindly received by the stomach, even when that organ is irritable and offended by every other medicine and by even the least irritating articles of food. I recall many cases in which I have received the most unequivocal advantages from its use under very discouraging circumstances. Very often, in complete abeyance of the digestive functions, it has calmed and toned the stomach, so that it has become again capable of receiving and digesting food, and thus life has been prolonged, the strength sustained, and the pathway to the tomb less fraught with suffering. A dessertspoonful may be mixed with half a pint of fresh milk and drank thrice daily. This seldom fails to improve the appetite and enable the stomach to digest the food. With this treatment I have seen life prolonged several months, and in one case, hereafter to be detailed, ultimate recovery took place. With the malt, for several years past, I have been accustomed to add a dessertspoonful of cod-liver oil to each dose of milk and extract of malt, and the result has been far more beneficial than when the cod-liver oil was alone used. Given thus the oil

will be tolerated and digested, when if given neat or in the usual forms, it would have offended the stomach and been rejected. As a tonic and invigorator of the nutritive functions, Lœflund's Extract of Malt is worthy of our confidence. Others may be as good, or they may be even better, but it is natural that I should cling to the preparation that has heretofore proved so satisfactory in my employment of it. I do not know of any other way of giving cod-liver oil that will add so much to its acceptability as this mixture with milk and malt, and none in which its efficacy is so marked. The high estimate placed on malt extract by Virchow, Niemeyer, Buhl, Dobell, Aitken and Trousseau, in pulmonary phthisis is, I believe, justly merited, and part of the results obtained in some of the cases hereafter to be reported may be partly attributed to advantages derived from the simultaneous employment of malt extract with the other medicines given.

(*To be continued.*)

AN INTERESTING CASE OF OBSTETRICS, WITH GENERAL REMARKS.

BY JAMES E. MORRIS, BELLEVILLE, TEXAS.

On the morning of August 18th, 1877, I was called in consultation by my partner, Dr. J. K. Stone, to render him assistance in a case of labor—primipara. On digital examination, I found that I could penetrate but about an inch into the vagina. I recognized a tense unyielding membrane. Ocular examination revealed a tense muscular septum occluding the vagina, there being only a small orifice at the urethral portion, through which I could pass a small probe, and through which with each pain was oozing a little bloody fluid. I informed husband and parents, and asked for consultation, for I feared, besides the vaginal trouble, there might be deficiency in the bony pelvis, as externally she was very ill formed, partaking more of the masculine physique. Dr. Tottenham, of Sempronius, answered my call, and in ten hours from the time I first saw her we attempted delivery. Dr. J. K. Stone administering chloroform, and Dr. Tottenham with his fingers holding open the vulva and vagina, I passed a small probe through the orifice, and with the probe as a guide I punctured with a curved bistoury, and then inserted

the probe-pointed bistoury, and laid open the obstruction antero-posteriorly to more than an inch in extent. Expulsive pains coming on did the rest. Now having room, I at once applied Brickell's forceps without any trouble, and with the next contraction of the uterus succeeded in effecting the delivery of a nine-pound child.

Dr. Tottenham and myself having been pupils of Professor Brickell, adopted his plan of immediate delivery of the placenta. The uterus at first contracted tolerably well, but in a few seconds there occurred alarming hemorrhage. Dr. Stone administered 60 minims of Stark and Dohme's Liquor Ergotæ hypodermically, Dr. Tottenham applied cold, and I injected solution perchloride of iron into the uterus. We succeeded in checking the hemorrhage, and in one hour from the commencement of the operation all was well. We washed out the vagina for ten days following the delivery with a carbolic acid solution. There was no fever, or any untoward trouble, and now the organs are entirely well.

The membrane was not allied to the hymen, being musculo-fibrous, and the husband assured me that until within the month previous to delivery there had been no obstacle to coition. The tissue at the point of junction with the urethra was a quarter of an inch thick, very vascular.

The woman had never had any trouble in menstruation, though on account of a scrofulous vitiation and anæmia, she was rather late commencing.

One further remark. When a student of medicine under D. W. Brickell, we were always taught that after the delivery of the child the placenta was to be speedily delivered, it being now a foreign body *in utero*. His plan I have adopted in practice, and I have never yet had any trouble result, although I have been called in on two occasions to deliver the placenta after 14 and 24 hours, by competent and skilled physicians, who had been taught otherwise and had strong faith in the *vis medicatrix naturæ*. In the 14 hour case there were no ill effects; in the 24 hour case the placenta was putrid, and the woman had puerperal peritonitis with partial sloughing of the vagina. With one hand to make gentle traction on the cord and the other to knead the uterus, I can not think there can be any danger of producing inversion. I make these remarks because I notice a discussion going on in the journals, in regard to the management of the third stage of labor.

To another point my attention has been called, by a late article in the *Obstetrical Journal of Great Britain and Ireland*, viz., the effects of narcotics and hypnotics on the fœtus. I have noticed that in labor without these agents, although the time consumed might be the same, there was less difficulty in resuscitating the child, and in one case, where we had to keep the woman under prolonged narcotism with morphia and chloroform, the child showed the effects of the agents and lived *but a short time*—and it was an entirely different condition from the asphyxia of Butt.

NOTE ON THE MICROGRAPHY AND CHEMISTRY OF A "PULTACEOUS CONCRETION" FROM THE TONSIL.

BY JOHN VANSANT, M.D.,

Surgeon U. S. Marine Hospital Service.

Beneath the surface of the tonsils in scrofulous and other persons, there sometimes occurs a whitish, circumscribed enlargement, often about the size of half a pea, and having a strong resemblance to an inflamed and swollen sebaceous follicle of the skin, and like the latter will, if pricked and pressed, give exit to a white, cheesy-looking mass, which, however, is harder than the sebaceous secretion of the skin, and is nearly globular in form. These globular masses, of the diameter of a swan-shot, or thereabouts, are often extruded from the tonsils by the resiliency of the gland tissue with considerable force, and ejected from the mouth with a cough, leaving a distinct cavity in the gland, not ulcerated, and with smooth edges. If a little lint on the end of a bent probe be introduced into this cavity and withdrawn, it will emit a most putrid and disagreeable odor, and if the concretion which has been ejected be examined, it will be found to have the same odor. These formations in the tonsils are frequently the source of much annoyance to persons apparently in good health, as the breath is likely to be affected by them. Until I examined microscopically and chemically one of these globular masses, I had considered them of the nature of sebaceous matter, somewhat condensed, and partially decomposed with the evolution of sulphydric acid gas, and I was greatly surprised at what I saw with the microscope. I have looked through a number of books to find some mention made of these

formations by authors, but I have found only one notice of them, and that a very short one, by a French medical writer, who styles them "*Pultaceous Concretions*," and believes them to be of a cheesy nature.

In examining a few days ago some of my medical memoranda, made six or eight years since, I found the following paper which, it seems to me, may possess some novelty sufficient to justify publication.

October 20th, 1870. Portion of a "pultaceous concretion" from a follicle of tonsil of a man apparently in good health, soon after extrusion, was submitted to microscopic examination. The *entire mass* was composed, apparently, of cells filled with living particles that could be seen, in some instances, escaping from the parent cell, and then, when free, exhibiting most active amœba-like motions, crossing the field, and elongating and contracting themselves. There were also many of these animalcules seemingly fully developed, and these bore a striking resemblance to those so-called "eels" sometimes developed in vinegar, both as to shape and movements. They were very active. Some measured as much as $^1/_{1000}$ inch long by about $^1/_{15,000}$ inch wide, and were sharpened at the ends. Most, however, were shorter, say $^1/_{5000}$ inch long by $^1/_{20,000}$ inch wide; and many more were shorter than these.

The matter of this concretion was *not* mostly of a fatty nature, since it was not dissolved by æther, chloroform, almond oil, water of ammonia, nor alcohol, hot or cold. A portion of the concretion was put in æther, and digested a number of days—12 or 15. The bulk of the mass was then found not much diminished, but the æther was slightly colored yellow. The æther was poured off and evaporated, yielding a notable quantity of cholesterin-like matter, which took the shape, in some instances, of colorless acicular crystals, often arranged in a stellate form, and in other instances, of amorphous granular masses of a yellow color; these substances were soluble in cold alcohol, and their odor was most like that of Russia leather. The odor of the fresh concretion was putrid and very offensive. A portion of the concretion which had been digested so long in æther was mingled with water, which did not dissolve but seemed to soften it, and then viewed with a high power—1200 diameters. Many of the smallest amœboid particles soon began tolerably active motion, and, occasionally, one of considerable length could

be seen stretching out and vibrating. The light from the concave mirror of the microscope seemed to stimulate their motions. A solution of ferri sub. sulph., U. S. P., diluted, and applied to the edge of the thin glass cover, stopped their motions and condensed their substance. I should mention that mixing the *fresh* concretion with almond oil, which neither softened nor dissolved it perceptibly, also caused the cessation of motion in nearly all the animalculæ. Glycerine does not dissolve the concretion, either fresh or dry. The dried concretion is not dissolved or discolored by water, hydrochloric, nitric, nitro-muriatic, sulphuric, or acetic acids. Liquor potassæ very slowly softens and gelatinizes the residue left after the action of æther, requiring for this purpose many days, and the fluid becoming of an amber color. Acetic acid added to a portion of this fluid does not cause a precipitate of protein, but changes the yellow color to a faintly opalescent hue. The further addition of a drop of strong nitric acid caused no visible alteration.

New Orleans, La., August 24th, 1877.

A CASE OF CUT THROAT.

BY L. W. GILLAND.

Rebecca Carter, colored, æt. about 25 years, was struck by her husband with a razor, May 13th, 1877, 7 p. m: The instrument entering just above the lower border of the cricoid cartilage, made a deep clean cut, severing in its passage the lower portion of the larynx and the œsophagus, exposing perfectly the prævertebral group of muscles. Fortunately none of the larger blood-vessels were cut, only the superior thyroid artery and vein on the right side. I saw the patient about an hour after the affray. There had been a great loss of blood, but the hemorrhage had ceased when I reached her, so that I did not discover the vessels involved until afterwards, when sponging the wound, the clots being removed, hemorrhage again set in but was soon checked by ligation.

Desiring to close the wound and bring the parts in apposition, but not being ready with proper instruments, I rendered the patient as comfortable as possible for the night and left her until morning.

The parts were very widely separated, perhaps as much as one inch, but wishing to secure as speedy union as possible, the segments of the larynx were drawn together and secured with silk sutures; the head was flexed upon the breast, and the patient rendered comfortable by hypodermic injection of morphia.

On the next day, 15th, fearing the sutures would cut out, owing to the amount of tension required to bring the parts in apposition, and with a view to obviating this, I drew the external wound together with two silk sutures in order to relieve some of the tension on the sutures in the larynx. In spite of this precaution, the sutures cut out that evening. Next morning, 16th, I repeated the same operation with a similar result. Failing in this, on the 17th I introduced silver wire sutures, hoping to obtain a more permanent result, but was doomed to a like disappointment. The parts being then much inflamed, I left her for three days, intending to introduce silver wire suture into the flaps of the external wound, draw the parts as nearly in apposition as possible, flex the head upon the breast, and leave it to granulation to complete the work. This was accordingly done, the wound being in good condition, the strength of the patient very fair, with good pulse and cheerful spirits.

Nourishment was administered in the shape of concentrated soups and tea, their introduction into the stomach being effected by injecting through an ordinary No. 12 gum catheter, which was passed through the mouth into the œsophagus below the section. Her strength was sustained by this means for six weeks. The bowels were kept regular by enemas of oil when necessary, but they were seldom required.

Water dressings were applied to the wound, with solution of chlorinated soda as a disinfectant. A solution of carbolic acid was also used in form of a spray externally and through the mouth. This palliated the attendant harrassing cough and rendered expectoration easier.

The patient continued to do well, the wound granulating rapidly, until June 4th, when I found her condition not so good, weaker, but the wound still healthy and granulation going on. She complained of difficulty in breathing, and owing to her restlessness the wound was gaping, and respiration took place through the opening in the neck.

On the 5th I again closed the wound with four silver wire sutures, which were held in position by two leaden bars about

two inches long and one quarter inch wide, one on either side of the wound. The wires being passed through the perforations were buckled with perforated shot, so that I could tighten each suture separately when necessary. After the wound was closed she could breathe more comfortably, and articulate, making known her wants in whispers.

On the 7th I found the patient comfortable, cheerful, and doing well; pulse strong and natural.

On the 13th I found the sutures again cut out, but partial union of the œsophagus had taken place, granulation was progressing, and the size of the wound was rapidly diminishing. The patient at this time made an attempt to swallow water, but with little success, part of the liquid passing into the larynx, causing a paroxysm of coughing, by which she got rid of a quantity of mucus from the trachea, which rendered respiration much easier. Respiration took place through the wound in the neck.

On the 16th I found stricture obstructing respiration so much as to cause distressing dyspnœa, demanding the use of a trachea tube which was introduced. She was able to swallow some, but the act of deglutition was imperfectly performed, and some of the fluid passed through the nose when the attempt to swallow was made.

On the 21st she was able to swallow without much difficulty, and liquid food was taken without the tube, and the patient was considered fairly out of danger. The external wound had closed up so as to fit closely the tube but had not fully cicatrized.

From this time on she steadily improved, and at last accounts was in good health. She has passed from my care, and I have not seen her for more than a month.

Remarks. I present this case to the profession, not that it displays any brilliant feat of surgery, but as one of interest, and one that is rare in its nature. While it is of common occurrence for surgeons of extensive practice to meet with cases of cut throat in which the larynx or trachea has been divided, it is very rare indeed to meet with one in which the œsophagus also is divided, and even when met with, but few recoveries are recorded. It is remarkable indeed, in this case, how these parts so deeply placed could have been divided in toto without involving the larger blood-vessels and nervous structures, injury of which would have been almost immediately fatal.

This case fully sets forth the tenacity of human life, and the wonderfully reparative process of nature, aided by professional knowledge and skill.

Delta, La., July 25th, 1877.

REVIEW OF CONTEMPORARY MODERN PHARMACY.

BY WILLIAM A. GREENE, M.D., Macon, Ga.

As allied to the professions, pharmacy is considered as occupying a subordinate position. The knowledge, skill and integrity of the pharmacist constitute the larger part of his capital, and these can only be exercised in a restricted sphere—they cannot be exhibited on his sign, nor in his windows, nor on his shelves, and, unfortunately, are too often overlooked by his customers. There can be no *quackery* where there is honesty, candor and publicity as regards formulas, and an enlightened and dignified policy toward the public. Such an apothecary will never on his labels, or in his advertisements, stoop to evasions and subterfuges; neither could physicians decry the demand for popular medicines, and place in the same category with the *quack* every druggist who ventures to put up medicines for sale with the necessary directions to adapt them to popular use, but would admit their necessity and themselves prescribe many of them. This would relieve us from continued application of patients for every trivial complaint, and also save a physician's fee among the poor every time they would be relieved of a catarrh or diarrhœa. Hard necessity requires the great body of our Southern people especially to practice economy in all things. Then, the whole question is—Shall the pharmaceutical profession supply this demand by the manufacture of reliable medicines of *known* composition, and prepared according to established scientific formulas, or shall they leave the entire field to the quack, and *themselves* become the agents in disseminating his falsehoods and adding to his gains? This is an important question, and the pharmaceutical and medical professions should *unite* rather to *supersede*, than *oppose*, the use and sale of secret nostrums—which, in my opinion, is the only way of preventing and destroying this wholesale imposition upon the profession and community at large.

Again: if the practice of physic was founded more on *knowledge* than observation and experience, we would have less adultera-

tions of both food and medicines, and especially of pharmaceutical products. That this evil is rapidly increasing no observing physician will deny. Stringent laws, heavy penalties, and vexatious and intolerant police, have all failed in all countries. The only remedy is in requiring medical students to learn more chemistry and pay more attention to pharmacy. We do not realize how intimately connected is *chemistry* with every branch of medicine. An acquaintance with our weapons of defence against disease—the materia medica—depends for its very existence upon a knowledge of chemistry. In chemistry mere hypotheses have no existence—everything must be subjected to experiment; the re-agent and the crucible, the blow-pipe and the test, are weapons of argument, and from them there is no appeal. The beautiful simplicity of its laws, admitting of no doubt or confusion, the certainty of its results, must enchain the reason of all who become introduced to them. Even in the infancy of chemical science, its power of supplying new remedies was appreciated. The vaunts of Paracelsus, in the 16th century, of the powers of his chemical remedies and elixirs, backed by his many surprising cures, convinced all rational physicians that chemistry could furnish many excellent remedies unknown till that time, and many experiments began to be made by physicians and chemists desirous of discovering and describing new chemical remedies. In this way antimony and mercury were introduced to the profession. The true use of chemistry, says Paracelsus, alluding to the search for the Philosopher's Stone, "is not to make gold, but to prepare medicines." Says Liebig: "How differently would the treatment of diseases be conducted if we had perfectly clear notions of the processes of digestion, assimilation and excretion." * * * * "without a perfectly solid chemical and physiological education, is it to be wondered at that men should defend the most absurd notions, as that of the doctrines of Hahnemann, the absurdities and infinitesimalities of homœopathy, the crudities of hydropathy," etc. Without a clear knowledge of chemistry to investigate pharmaceutical products, their qualitative and quantitative analysis, chemical composition, etc., the physician is as a pilot without a compass, a ship without a rudder. If our medical schools were alive to the importance of this subject, and required a good knowledge of medical chemistry before graduation, there would be no necessity for such papers as I am trying to write, because

each physician would be competent to determine the questions and subjects under review and discussion, for himself.

I have penned the above scattering thoughts, as seeming to me proper as prefatory to the continued discussion and review of pharmaceutical and chemical products. In last month's Journal I briefly alluded to the house of John Wyeth & Bro, and some of their preparations, particularly their *dialysed iron*, which is rapidly being used by the profession, and I am anxious to hear from them, and hope physicians will report their experience through the journals. Facts derived from observation and experience are very valuable in arriving at the merit of any remedy.

The enterprising house of "Keasly & Mattison," of Philadelphia, are manufacturing and offering to the profession several very convenient and elegant remedies. Among them I notice their improved Extract of Malt and combinations. The subject of *food* medicines, for the past year or two, has attracted increased attention from our most intelligent physicians. In fact, in most portions of the South and Southwest, the malt preparations are *curiosities* in therapeutics, but comparatively few physicians knowing anything of their medical properties or chemical composition. So impressed am I with the great value of these remedies in our malarial climate, that this is my second paper on the subject recently. But a few years since, a good and reliable article of malt extract could not be manufactured in the United States. We have now *at least two* manufacturers of it—almost equal to the best imported preparations, and *much cheaper*. I refer to Trommers, at Fremont, Ohio, and that made by "*Keasly & Mattison*," of Philadelphia, now under review. *Lœflund's*, made first by the suggestion of Prof. Liebig himself, is the best article ever imported to this country, but so high priced that few could afford to use it, costing *seventy-five cents* for one *half-pint* bottle—and our own home made preparations costing *one dollar* for *one quart* bottle. I would take this occasion to warn the profession against the use of what is known as Hoff's Malt Extract, at one time enjoying a very extended sale throughout the north and middle States. It is perfectly worthless, being composed, as I have tested, principally of *alcohol* and *carbonic acid*. The preparation of Keasly & Mattison is not excelled by any I have examined, and is really another instance of beautiful and elegant pharmacy. It is *all* that is claimed for

it by the proprietors, and I confidently recommend it to those wishing to use the remedy, both from observation and experience, as well as through analytical investigation. This medicine is specially adapted to the diseases peculiar to a malarial region, and its non-use by our physicians is attributable alone to the lack of experience or ignorance of such medicines, together with a neglect of attention to the study of physiological therapeutics. It is a tonic and valuable nutrient food-medicine, well adapted to all cases of dyspeptic or stomachic diseases with hepatic disturbance, when there is non assimilation of starch-food, so indispensable to the building up of emaciated and debilitated constitutions. In the slow convalescence from malarial trouble it has no equal in our therapeutics. It is not only nourishing in itself, containing so much *malt sugar*, but the presence of *diastase*, converting graminaceous and amylaceous food into saccharine, rendering it of very great importance as a diet when grain and starch foods are administered.

Malt extract has also been found very valuable in consumption and similar wasting diseases, by furnishing nutrition to the invalid, and by converting other food into a readily assimilable condition to be promptly absorbed into the system. It facilitates expectoration, soothes mucous irritation, and promotes the biliary secretions, thus furnishing a valuable remedy in all throat and lung diseases. Being a dyspeptic myself, I am always relieved promptly of the *heavy feeling* in my stomach after eating potatoes, or other graminaceous or amylaceous food, by taking a small quantity of good extract of malt, thus furnishing me an *artificial saliva* which, because of the inability of the natural secretions to convert starch into sugar, makes good this deficiency.

The combinations of malt extract with other remedial agents, as prepared by this house (Keasly & Mattison), deserve *special* mention in this connection.

The *Ferrated* Malt Extract is made by the addition of a syrupy solution of ferric pyrophosphate, and combines, beautifully blended, the nutritious properties of the malt with the tonic and blood making properties of the iron; then add sul. quinine to this, and it would be difficult to procure a more effective combination for many diseases. It is also most advantageously combined with pepsin, thus digesting both albuminous and amylaceous matter, increasing its efficacy in dyspeptic and other stomachic diseases.

They further combine their extract of malt with 50 per cent. of pure Norwegian cod-liver oil, which by the action of the *diastase* in the malt is capable of transforming many times its bulk of amylaceous or graminaceous food into saccharine, rendering it digestable by the most sensitive stomach, besides obviating the disgusting eructations by which many are prevented from taking the oil. It is a noted fact, that this emulsion *unites perfectly with water in any proportion*, and remains so, showing how perfectly the oil is *emulsified*. But *the* combination of *all* is the "beef, iron and wine with the extract of malt," which I have frequently had demonstrated in my own practice. Children and delicate females take it readily. Of all *tonic dietetics* I have found it the most valuable. While it permits the stomach to assimilate amylaceous diet, the malt furnishes readily assimilable food at the same time. The iron supplies red corpuscles that are deficient, while to the nutrient effects of the beef is added the stimulant effect of pure and old sherry wine. These preparations are for sale in all first class drug stores. I have the preparations of the house under review in my office for many weeks, prescribing them in my practice, besides subjecting them to severe chemical tests. The rapidly increasing popularity of these remedies, and use of them by physicians, will cause the market to be flooded with utterly worthless and adulterated articles, concerning which I warn the profession, taking care to use only those mentioned favorably in this paper, when I am confident your experience will agree with mine.

I will close this paper by a brief reference to an article of infant food prepared also by (Keasly & Mattison) this house, after the suggestion of Prof. Liebig, who said: "It is understood that if a child be refused its natural food, the mother or nurse has to provide its nourishment. The child's improvement depends on the correct choice and mixture of the aliment. It is no mistake but a fact, that the usual farinaceous foods are the cause of most of the diseases and half of the cases of death among all the babies in the world." What is the best food for the baby? is the ever recurring question from thousands of mothers who are unable to furnish sufficient nourishment for their offspring. Now it is clear to us that the nearest approach to mother's milk is to dilute the cow's milk with about one-third of its bulk of water, and add the requisite proportions of milk-sugar and alkaline phosphates. To provide the sugar and phos-

phate is the object of this "*Keasly & Mattison Infants' Food.*" A small portion of this "*Food*" consisting of malt sugar, diastase, dextrine, alkaline phosphates, etc., added to a quantity of dilute cow's milk, mentioned above, constitutes the celebrated "*Soup for Infants*" prepared by Baron Justus von Liebig some years ago, which has saved so vast a number of infant lives in Europe since its introduction there. The physiological therapeutics of infantile food may interest some readers of this paper who have not given the subject as much thought as its importance demands, and I will briefly as possible allude to it.

There is perhaps no more common error than that of administering to the infant arrow-root, corn starch, tapioca, rice, oatmeal, or other starch foods, the idea being to enrich aliment provided by the substitution of cow's milk. This is a grave error, and very injurious to infants for this reason: *after* the teeth make their appearance, a substance is secreted by the salivary glands which has the power of changing starch food and converting it into malt sugar, and at this period (after dentition), of course all kinds of starch food are very valuable as nutriment; but shall we give this starch to infants? Certainly not! Then why? Because, until after dentition this starch-converting substance (animal diastase) is not secreted by the salivary glands, and consequently the starch food remains in the stomach and intestines, not as food, but as a jelly-like substance, non assimilable, foreign, and only destined to irritate the delicate membranes, producing diarrhœa, etc. In malted barley is a substance (vegetable diastase) precisely similar to that found in the mouth of an adult as constituting a portion of the saliva. By taking a portion of this vegetable diastase found in malted barley, and mixing with it arrow-root and water, the starch is completely changed into malt sugar, and this substance only can properly be given to an *infant.*

This conversion of starch food into malt sugar has been beautifully effected in the preparation here under discussion.

In 1845 Mialhe read a *Memoire* to the French Academy on his discovery of animal diastase in saliva. He said it was to *saliva* that is due the digestion of farinaceous elements. But long before the celebrated French chemist made this discovery and announcement, our old grandmothers knew it practically and experimentally, for many of us no doubt got our infantile food from the mother's mouth, also often from that of the old *colored*

marme, after they had carefully *chewed* and *moistened* the morsel with their *own animal diastase* from their saliva before putting it between our baby lips. They well knew the child thrived on this manner of preparing their food, little dreaming of the *reason* or the *chemistry* of it. It remained for Prof. Liebig, in 1860, fifteen years after, to describe the entire process, when he established his celebrated formula, which Keasly & Mattison observe in their "Baby Food," and which has saved so many infant lives in this country, and is destined to save myriads more if properly explained and understood by physicians and mothers.

This preparation is also a good diet for invalids, in typhoid fever and other wasting diseases requiring to be fed instead of dosed with medicine. It is always ready for use, the milk to be slightly warmed, and a portion of the food mixed with it simply by stirring with a spoon. It is perfectly soluble, and requires no straining. It can be found in all respectable drug stores. Like the malt extract, from its popularity and extensive use and sale, it will be duplicated, and the market flooded with *cheaper* and worthless articles, purporting to be as good as this; therefore be careful, in ordering, to get that which has been tested chemically and by observation and experience.

RETENTION OF FRACTURED MAXILLÆ.

BY A. B. MILES, M.D.

Fractures of the inferior maxilla are far more frequent than those of the upper maxilla. Some of these fractures are right difficult to reduce and retain in position, while in many cases the deformity is slight, and retention in position is easily accomplished. Hence, a double cause for the number and variety of appliances used in practice. Some are quite ingenious, and difficult of application; others are very simple and easily applied.

In two cases of fracture—the first, fracture of the superior maxilla, just released from treatment, the second, of the inferior maxilla, yet under observation—india rubber rings, made of narrow sections of rubber tubes, and passed over the neighboring teeth, served the purpose of retention admirably well.

The first occurred in a French Creole, twenty-six years of age, who, in an unsolicited bull fight, was knocked down, and though

a fallen foe, was stamped in the mouth by his cowardly adversary. The right superior maxilla was fractured. A section of bone about one and a half inches square, including the alveolar process in front and a part of the hard palate, was so displaced as to make an ugly deformity.

The piece of bone was adjusted, and retained in place by a couple of rubber rings for twenty-five days, when the union was complete.

The second case is that of an Irishman, thirty years of age, who entered a surgical ward in the Charity Hospital on the 16th of August, 1877, with a double fracture of the inferior maxilla, caused by a blow with a brick-bat. One fracture occurred about an inch to the right of the symphysis, the other just in front of the left angle, both compound and comminuted. The tendency to displacement was hard to overcome, the application of an external splint with a bandage closely applied, and the suturing of the teeth with the largest size silver wire, proving inadequate.

Graduated rubber rings, made of sections of tubes of different sizes, were passed over the first, second and third teeth from the seat of fracture, which held the loose section of bone firmly in place. A pasteboard splint, with a four-tailed bandage, was also applied. This dressing was made one week after the injury. One month after the injury, union was still incomplete, and fragments of necrosed bone were removed. Perhaps a more artistic appliance to such a fracture would not have secured a better result. Even in this exceptionally bad case, the efficiency of the rings was clearly shown.

The elasticity of the rubber rings is sufficiently powerful to overcome any muscular contraction which might tend to disarrange the parts, and constantly keeps the fractured edges of bone in close approximation. Indeed, a force too strong may displace the teeth, especially those next the seat of fracture.

Now, we do not urge the substitution of these rubber rings, in all cases of fracture of the maxillary bones, for the more admirable contrivances which we have at our command, such as the interdental splint of vulcanized rubber. We are very often forced to utilize what we have, in the absence of what we need. A great many fractures, even of the lower maxilla, are very easily held in proper position, and we would only suggest the use of these rubber rings as a cheap and simple device, the value

of which we hope will recompense for the space occupied by this article.

A CASE OF INTERMITTENT FEVER—TEMPERATURE 108° FAHR.

BY H. L. METCALFE, JR.,

Resident Student, Charity Hospital, New Orleans.

Emma Nicolo, aged 27 years, a native of Germany, entered the Obstetrical Ward of the Charity Hospital, February 13th, 1877. She was confined July 24th, and after a perfectly natural labor, gave birth to a five pound male child. August 1st, eight days after parturition, she had a slight fever. A dose of the sulphate of cinchonidia was given that evening. The next morning she was free from fever.

August 2d, 7 p. m., found patient with a temperature of 108° Fah., taken in right axilla. Gave in solution cinchonidiæ sulphas, ʒss, and began sponging her from head to foot with ice water; ice bags were applied to her head. At 7½ p. m. her temperature had fallen to 105¾° Fah.; sponging constantly kept up. At 8 p. m. her temperature was 102¾° Fah. At 8½ p. m. I stopped sponging, and the temperature had fallen to 101° Fah. 12 p. m., gave in pills cinchonidiæ sulphas., gr. xv.

August 3d, 6 a. m.—Cinchonidia pills repeated. 10 a. m.—Temperature 102½° Fah. Ordered

℞—Tinct. aconitii rad., - - ʒss.,
Liq. ammoniæ acetat., - - ℥ivss.,
Spts. ætheris nitros. ad., - ℥vi.
℥. Et. S. Tablespoonful every two or three hours.

1¼ p. m.—Temperature 105¾° Fah.; again reduced the temperature with ice. 3½ p. m.—Temperature 106° Fah.; vomited bile; an enema caused a bilious evacuation of the bowel; gave magnesia sulphas. ℥i. 4 p. m.—Temperature 106° Fah.; patient sinking; venous congestion of hands and face; pulse rapid, irregular and very feeble; gave one ounce of pure brandy. 5 p. m.—Slight improvement; temperature 105° Fah. 8 p. m.—Salts operated; decided improvement; temperature 103° Fah.; pulse stronger and regular; tongue moist; ice sponging kept up at intervals.

9 p. m.—Temperature 103° Fah.; skin moist; patient perfectly rational, and expressed a desire to sleep. Left at 9¼ p. m., patient sleeping quietly.

August 4th, 8 a. m.—Patient passed a good night; better in every respect this morning; temperature 101° Fah. 12 m.—Gave 10 grs. of quinine in solution; temperature 102½° Fah. 12½ p. m.—Patient drank and relished some chicken broth. 3 p. m.—Temperature 103¾° Fah.; quinine renewed; sponged with ice water. 3½ p. m.—Temperature 103° Fah. 6½ p. m.—Temperature 102¼° Fah.; gave 10 grains of quinine in solution. 8½ p. m.—Temperature 104½° Fah.; sponging renewed. 9 p. m.—Temperature 101¾° Fah.; stopped sponging; gave 10 grains of quinine in solution; pulse feeble; brandy toddies given.

August 5th.—Slept very little last night. 7½ a. m.—Temperature 104° Fah.; gave hydrag. chlor., mitis et sodæ bicarb., aa gr. vi. 10½ a. m.—Gave magnesiæ sulphas, ℥i. 1 p. m.—Bowels operated three times—bilious evacuations; temperature 103¾° Fah.; took chicken broth and toddies. 3 p. m.—Temperature 104° Fah.; sponged with ice water. 4 p. m.—Temperature 102½° Fah. 9 p. m.—Temperature $102^{3}|_{5}$° Fah.; 10 grains quinine in solution given; sponged with ice water. 9½ p. m.—Temperature 101° Fah.

August 6th, 7½ a. m.—Temperature 103° Fah.; slept badly last night. 10 a. m.—Gave 10 grains quinine in solution; temperature 103¾° Fah.; pulse, 100 beats per minute and feeble; respirations, 44 per minute. 4 p. m.—Temperature 102¾° Fah. 8 p. m.—Temperature 103½° Fah.

August 7th, 8 a. m.—Temperature 102½° Fah.; slept very little last night. 3 p. m.—Temperature $102^{4}|_{5}$° Fah. 8 p. m.—Temperature 100½° Fah.; gave 10 grain doses of cinchonidiæ every three hours during the day.

August 8th, 8½ a. m.—Temperature 101½° Fah.; gave 5 grs. of quinine in powders every two hours. 2 p. m.—Temperature 102½° Fah. 6½ p. m.—Temperature 100¼° Fah.

August 9th, 10 a. m.—Temperature 100° Fah. 7 p. m.—Temperature 100½° Fah.

August 10th, 8½ a. m.—Temperature 101¼° Fah. 7 p. m.—Temperature 100½° Fah.

August 11th, 8½ a. m.—Temperature 101° Fah. 6½ p. m.—Temperature 100½° Fah.

August 12th, 9 a. m.—Temperature 100¾° Fah. 7 p. m.—Temperature 99° Fah.

August 13th.—Patient rested well last night; temperature normal; perfectly free from fever, but is very weak. Ordered a tonic of elixir of beef, wine and iron—tablespoonful three times daily. From this time on the patient continued to improve, and was discharged, perfectly well, on the 29th of August.

CURRENT MEDICAL LITERATURE.

ERYSIPELAS IN CONNECTION WITH THE PUERPERAL STATE.

Mrs. A., aged 30, had for some weeks been under my care suffering from neuralgia, which was thought to be due to her pregnant state. She was a strong, well-nourished woman, the mother of four healthy children, and believed herself to be about seven months pregnant. The neuralgia being persistent, and the appetite failing, it was considered whether it would not be advisable to induce premature labor, when, on June 10th, erysipelas of the left side of the face supervened and rapidly involved the whole of the head and neck; the temperature during the following three days being about 103° Fahr., and the pulse 140. On the evening of the 13th, within two hours of the onset of the labor pains, an almost full-time female child was born, with scarcely any effort on the patient's part, and without anything having been done to induce labor. The patient rapidly convalesced, and was up and practically well at the end of a month. For twenty-one days the child was fed with the bottle; but as both the mother and grandmother expressed a wish that the infant should be suckled, the breasts were kept secreting milk, by the use of the breast-reliever, until ten days had elapsed from the disappearance of the erysipelas. This case is of interest as almost exactly resembling, both in character and result, a case reported in the Journal of June 2d.

SPONTANEOUS GENERATION.

Professor Tyndall, in a paper read at a recent meeting of the Royal Society, showed that repeated heatings for a short time destroy the living germs from which infectious growths proceed much more effectually than any continuous heating for a long time, even though that time should be much longer than all the shorter periods added together. His view is that living germs exist in all stages of growth, in some of which they are hard

and insensible to heat; in others plastic, and instantaneously destroyed by heat; and he thinks that by repeating the heating process very often, the heat catches the different germs in all their stages, while if one heating takes place, even though it lasts for many hours, some of the germs may live through it, owing to their not having reached the age of development in which they are destroyed by heat. Another way of destroying the vitality of these germs, is to deprive them completely of air by the use of the Sprengel pump, after five or six hours' exposure to which they will be rendered permanently barren. Dr. Bastian may find that this discovery of Prof. Tyndall's accounts for some of the seeming successes which he has achieved in producing life out of tubes previously raised to a very high temperature, and sustained at that temperature for many hours.—*Science Gossip.*

REPLANTATION.

On the 6th of May, 1876, a young man came to my office suffering with toothache of the right superior lateral incisor. He refused to submit to any treatment of the tooth, and insisted on its extraction, which was done. After examination, I concluded to try the experiment of replanting. After filling the root and crown, and removing the pus sac, and taking off a small portion of the root, which had been partially absorbed, I replaced it, securing it in position by fastening it to the adjoining teeth on either side with silk thread. The fastening after a few days was removed. More than a year has elapsed since the experiment was made, and it has proved to be a complete success. The young man tells me that he knows no difference between that and his other teeth.—Locke, *Dental Cosmos.*

THE SLEEP OF PLANTS.

Several members of the Parisian Biological Society have recently been engaged in a series of experiments which seem to prove that everything endowed with life, whether animal, plant, or ferment, is susceptible of being brought under the influence of anæsthetics—in other words, may be sent to sleep. It has been proved that the influence of anæsthetics extends to all the animal tissues, and last of all to the central nervous system. Hence, it was argued, plants having tissues must also be subject to the influence of ether, etc. Experiments have proved this to be the case. Germination is arrested by anæsthetics. The water-cress, for example, germinates within thirty hours. Ether arrests germination in this plant, but does not destroy that faculty. It merely sends the plant to sleep, for germination

recommences as soon as the use of ether is suspended. This capability of being put to sleep is not confined to plants; it extends to ferments. Thus the ferment of beer, when submitted for twenty-four hours to the influence of ether, becomes perfectly dormant, but recovers activity as soon as anæsthetic action is suspended.—*Boston Journal of Chemistry.*

ETHERIZATION AND ITS DANGERS.

Among the several interesting articles which appear in the August number of the *Practitioner*, is an original paper by Dr. O. B. Shrede, of Salem, Mass., on Etherization and its Dangers, with a history of three cases, the first of which proved fatal. The action of ether is, in many respects, identical with that of dilute chloroform. Its first effect is to increase the heart's action, rendering the pulse, generally, frequent, irregular or fluttering, but after its administration for a short time it becomes more steady and regular. The depression which follows is not equal to that when chloroform is administered. Death from ether is partly due to enfeebled action of the heart, but mainly to arrest of the respiratory movement, the heart continuing to pulsate even after the respirations have ceased. The order in which the nerve centres are involved are as follows: first the cerebrum, then the sensory centres of the cord; next, the motor centres of the cord; next, the sensory centres of the medulla oblongata, and finally its motor centres. The dangers to be avoided are, the arrest of the respiration and of the heart's action, from paralysis of the cardiac and respiratory ganglia, which are manifested only after an overdose is administered, though a state of anæmia may tend to produce these results when only a small quantity is given. The breathing is the key-note to the patient's condition. It is hardly sufficient to know that the patient breathes; for if this is irregular or superficial while the subject is fully under the influence of ether—if the face becomes dusky red, or very pale, or there are symptoms of syncope, there is great danger. The accidents which may occur are as follows. (1) Falling back of the tongue. (2) Paralysis of the muscles of the larynx. (3) Syncope, from anæmia, weak heart, position, age, hemorrhage, idiosyncrasy, prolonged etherization, etc. (4) Vomiting. (5) Blood coagula in operations about the nose and mouth. (6 Arrest of respiration. (7) Arrest of the heart's action. As the indications for treatment in cases 1, 2, 4, 5 are evident, we shall only notice his remarks under the heads of Syncope and Arrest of Respiration. A surgeon with a patient in a state of syncope whose nerve centres are paralyzed from ether, has a far more difficult problem than is ordinarily presented—one that demands promptness of action. Generally arising from anæmia, sudden loss of blood, or a weak heart, place

the patient's head on a lower plane or raise him up by the feet. When the first symptoms of arrest of respiration are manifested, immediately discontinue the etherization, resort to and continue persistently artificial respiration. Electricity and hypodermic injections may be applied by others, but should not interfere with artificial respiration. If the temperature becomes lowered, envelope the patient in hot blankets, and apply bottles of hot water to the feet. The writer concludes his interesting paper with the following observations. I am far from considering accidents from ether as frequent, yet we must not consider it innocuous and entirely free from danger. If we observe the successive effects produced by the drug on the nervous sytem of a dog, viz., abolition of motion, sensation, reflex action, arrest of respiration and the heart's action, resulting in death, can we observe the same symptoms manifested in man from some cause which renders him peculiarly susceptible to its effects, and say that the dog died from ether, and the man from heart disease or shock, with any degree of justice? J. M. W.

CHLORAL IN WHOOPING COUGH.

Dr. Mulligan, of Wirksworth, writing in the August number of the *Practitioner*, on the action of chloral in whooping cough, says: Early in the present year I saw five cases of this disease in one house, the ages of the patients varying from eighteen months to ten years. All were uncomplicated; the characteristic cough was well marked, attended with a considerable discharge of thick, glairy mucus. In the oldest the spasms were violent, and in three cases the paroxysms terminated in vomiting. Belladonna and bromide of potas. were administered without benefit. Gave chloral hydrate in 1 to 5 grs. three times daily with marked benefit. Seven other cases have been treated successfully since in the same way. The decided effects from this drug on reflex irritability is likely to result in much good from its use in this disease. J. M. W.

PATHOLOGY OF URÆMIA.

In the *British Medical Journal* of Saturday, July 28th, Dr. T. J. Maclagan, of Dundee, justly criticises an article of Dr. F. A. Mahomed, on the Pathology of Uræmia and the so-called Uræmic Convulsions, in which Dr. M. expresses it as his opinion that these convulsions are caused by minute capillary hemorrhages in the brain. After referring to the theory of Bauler, that the convulsions and other nervous symptoms are the result indirectly of cerebral œdema, which pressing on the capillaries and veins, causes mal-nutrition or anæmia of the brain, Dr. Maclagan questions the possibility of capillary hemorrhage pro-

ducing such results, either from loss of blood or physical pressure. The hemorrhages, as described by Dr. Mahomed, are so minute that the loss of blood cannot be felt by the brain; and according to French physiologists, miliary aneurism, differing only from the hemorrhage in having the blood surrounded by the aneurismal covering, but producing in virtue of their number even greater pressure, would more likely be attended with convulsions; and yet such is not the case. He ends his objections by opposing the substitution of an agency whose very existence is doubtful for that of mal-nutrition of the nervous centres, a known powerful agency in every case of uræmia. J. M. W.

A DARING THERAPEUTIST.

At a late meeting of the Massachusetts Dental Society, Dr. Waters, of Salem, stated that bicarbonate of soda, such as used for cooking purposes, or any other alkali in neutral form, would afford instantaneous cessation of pain from the severest burns or scalds, and would cure such injuries in a few hours. Dipping a sponge into boiling water, the doctor squeezed it over his right wrist, producing a severe scald around his arm and some two inches in width. Then, despite the suffering occasioned, he applied the scalding water to his wrist for half a minute. Bicarbonate of soda was at once dusted over the surface, a wet cloth applied, and the pain, the experimenter stated, was almost instantly deadened. Although the wound was of a nature to be open and painful for a considerable time, on the day following the single application of the soda the less injured portion was practically healed, only a slight discoloration of the flesh being perceptible. The severer wound, in a few days, with no other treatment than a wet cloth kept over it, showed every sign of rapid healing.—*Medical and Surgical Reporter.*

THE NEW TREATMENT OF RHEUMATISM.

Dr. Jacob, Physician to the Leeds Infirmary, writes to the *Medical Times and Gazette* (London): The following conclusions seem justified by a year's experience in the use of salicine and the salicylates—

1. That salicine and its congeners are powerful remedies in the treatment of rheumatism.

2. These drugs are of most use in acute rheumatism of moderate severity. They are of less value, though still useful, in the chronic and subacute varieties, while in the most severe cases—viz., those accompanied by hyperpyrexia and delirium—they appear to have little or no influence on the disease.

3. That in an attack of acute rheumatism of average type

treated by the drug, all signs of rheumatism are, in most cases, removed in from one to three days. If, however, the drug be discontinued, there is serious danger of a relapse.

4. That cardiac complication, though occasionally met with in patients taking the drug, is rare.

5. In many cases toxic symptoms are developed after the patient has taken the drug for a few days. Of these, the most common is vomiting; the deafness, tinnitus, and other phenomena of quinism are occasionally found. These symptoms are most marked in the case of salicylic acid, and less so in the case of salicine.

6. Of the three drugs in use, salicine appears the weaker; it is, however, the pleasantest to take, and is less apt to cause gastric disorder. Salicylic acid, although of greater power, is most nauseous, and may with greater advantage, be replaced by sodium salicylate, which has equal effect, and is freely soluble in water.

So far as we may judge from the above cases, the statements of the original introducers of salicylic acid as a remedy for rheumatism can hardly be accepted without considerable modification. In the very acute forms, with hyperpyrexia, we can hardly dispense with the cold bath, though even that may fail. It remains for future experience to point out (1) in what cases these drugs are contraindicated; (2) how far this mode of treatment is an improvement on the methods in general use, as regards permanence of cure and prevention of cardiac complication. Already, several cases of relapse have been noted; and it is possible that, as with colchicum in gout, and chloral in convulsions, we may occasionally find the patient more liable to a fresh attack than if other or expectant methods of treatment had been adopted.

As regards the manner of administration of the drugs, the following method was in most cases adopted. The patient was allowed to remain in hospital from one to three days without any medicinal treatment, other than anodynes. After that period, if the symptoms still continued, salicylate of sodium, or salicine in thirty-grain doses, salicylic acid in twenty-grain doses, was administered every four hours, till the temperature was reduced and the pain relieved. The drug was then continued thrice daily, for ten days or a fortnight.—*Medical and Surgical Reporter.*

ADMINISTRATION OF SALICYLIC ACID.

The *Pharm. Centralhalle* gives the following formulæ for preparing a saturated effervescing solution of salicylic acid. The proportion of salicylic acid to carbonate and bicarbonate of soda in a saturated solution being 1 : 1·04 and 1 : ·065 respectively, an effervescing mixture may be thus prepared:—

	Grms.
Acidi salicylici	8
Syrupi aurantii corticis	30
Aq. destill	207

Transfer these into a flask, and add

Natri bicarbonici	5

Cork the flask immediately, and keep in a cool place till solution is effected. Dose—One to two tablespoonfuls every hour or two hours.

Or an effervescing mixture of a very durable character may be thus prepared:

	Grms.
Acidi salicylici	5
Natri bicarbonici puri	10
Aq. destill	600 ad 650

Transfer these into a flask, and add

Acid. sulph. dil	22

Cork immediately, and lay aside for an hour, shaking the bottle from time to time. Dose—A wineglassful occasionally. (For Diabetes, etc.)

Or a simple mixture may be thus prepared:

	Grms.
Acidi salicylici	8
Aq. destill	184

Transfer into a flask, and add

Natri carbonici crystall	8·5

Cork immediately, and keep in a cold place until solution be effected.—*Druggists' Advertiser.*

NITRATE OF SILVER IN LARYNGEAL PHTHISIS.

Dr. James Sawyer, of London, referring to the use of nitrate of silver in laryngeal phthisis, says he has found it especially valuable in relieving the difficulty of deglutition, attributing the benefit to the lessening of the morbid sensibility of the tumid and ulcerated mucous membrane, rendering the swallowing less painful, and by removing the irritability of the larynx, abates the inclination to cough. J. M. W.

ON THE TREATMENT OF PITYRIASIS CAPITIS BY SOLUTION OF CHLORAL.

In a paper read before the Société de Thérapeutique, of Paris, reported in the *Bulletin Général Thérapeutique*, Dr. Martineau

advocates the treatment of pityriasis capitis with solutions containing chloral. After remarking on the persistence of pityriasis and its obstinate resistance to the numerous drugs which have been tried against it, Dr. Martineau says: "If I am not deceiving myself, chloral offers us a means, if not certain at least very efficacious, for the treatment of this rebellious affection." In the hands of Dr. Martineau and also of Professor Tardieu, the following solution has given excellent results: Water, five hundred grammes; hydrate of chloral, twenty-five grammes. This solution should be made lukewarm, and applied in the morning with a sponge to the diseased parts. The part touched with it must not be wiped. If the pityriasis be recent, a single application will often suffice for its cure; if it be old it disappears to reappear later on. The solution of chloral always has the effect of causing a disappearance of the rash and the pruritus, so that it is sufficient to continue the lotion in a case of chronic pityriasis until the patient suffers no inconvenience from his disease. If the pityriasis be complicated with any other cutaneous affection, as erythema or prurigo, it is necessary, before employing the solution of chloral, to use the following liquid: Water, five hundred grammes; hydrate of chloral, twenty-five grammes; Van Swieten's solution, one hundred grammes. This solution should be used every morning with a small sponge. When the affection which complicates the pityriasis has disappeared, the chloral solution may be returned to. The application of solution of chloral causes immediate redness of the skin and provokes slight itching, but these inconveniences only lasts a few minutes.—*Druggists' Cir. and Chem. Gaz.*

A NEW METHOD OF TREATING FRACTURE OF THE CLAVICLE.

Henry VanBuren, M.D., Chicago.

While one of the visiting physicians of the Central Free Dispensary, about two years ago, I treated a patient for fracture of the clavicle, adopting the plan of my friend, Dr. Lewis A. Sayre, of New York, using two strips of adhesive plaster without any axillary pad.

I became convinced at once, that the principle advocated by Prof. Sayre was undoubtedly the correct one; but before I had gone very far in the use of the adhesive strips, I found that my patient, a young native of Ireland, began to tear them off. The weather was warm, and, to use the language of the lad, they "itched him."

Finding this difficulty in holding the arm and shoulder back by a hitch around the body with adhesive plaster, the thought struck me that I would make a hitching post of the sound shoulder instead. Not as in the old plan of a figure of eight around both shoulders, but upon that which I will now lay before my brethren in the profession.

To make known my plan in a sentence—I make attachment to the middle of the arm on the fractured side; draw the arm backward until the clavicular portion of the pectoralis major muscle is put sufficiently on the stretch to overcome the sterno-cleido-mastoid, and then make a hitching-post of the sound shoulder to hold these muscles in extension, and by this extension with the sling the ends of the fractured clavicle are held in apposition.

I make the first bandage three or four inches wide out of unbleached cotton, of double thickness and sufficient length. On one end of this bandage a loop is made, by returning the bandage on itself, and fastening the end with a few stitches. The hand on the injured side is then passed through this loop, and the loop carried up to a point just below the axillary margin. This bandage is then passed directly across the back, and under the sound arm and over the sound shoulder, and returned across the back, and pinned or stitched to itself at the point where the loop is formed.

The second bandage is then made and applied as follows:

I flex the arm of the injured side, and place the hand on the chest, pointing in the direction of the sound shoulder; I then take a piece of the same material as used in the first instance, and make a bandage 4 inches wide, of double thickness and sufficient length, and pin or stitch one end of this bandage to the lower margin of the first bandage, in front of the sound shoulder. It is then passed diagonally downward, and across the chest under the hand and forearm which has been flexed upon the chest, and carried around the arm at the elbow, and back on the dorsal surface of the forearm and hand to the point from which it started, and this end also pinned to the first bandage.

I then stitch the lower margins of the bandage together for a distance of about three inches at the elbow, thus forming a trough for the elbow to rest in. I also do the same at the upper end of this bandage, which forms another short trough for the hand to rest in.

This bandage or sling may be made as described above, before it is applied, and the elbow placed in the lower trough and the hand in the upper one; and the upper ends of the bandage pinned to the lower margin of the first bandage, at a point opposite the sound shoulder, as above indicated; indeed, I prefer this plan because more convenient.

This sling serves the triple purpose of drawing the lower end of the arm forward and upward, and thus throwing the injured shoulder backward. It supports the forearm and hand in a comfortable and quiet position, and last, it prevents the first bandage from cording under the sound arm by its attachment to its lower margin.

To prevent the first bandage from producing excoriation in the axilla of the sound side, I usually cushion the bandage at this point by stitching on two or three extra thicknesses of the cot-

ton cloth. The same may be done at the loop—around the arm of the injured side, if necessary.

What is presented, then, for the consideration of the profession in this method is—

1st. The great simplicity of the appliance.

2d. The complete retention of the fragments in apposition.

3d. The comparative ease with which the bandage is worn.—*Chicago Medical Journal and Examiner.*

THE PROPER MODE OF TYING CARBOLIZED CATGUT LIGATURES.

In the use of carbolized catgut for the ligature of larger arteries, and in cases of aneurism, everything depends upon the mode of tying the knot. As a practical guttier I can lay down two principles; the non-observance of either, and *à fortiori* of both, must lead to failure. The knots, in the first place, must be properly formed; and, in the second, must be perfectly made—that is, drawn tight. The first is the most important, as a properly formed knot may draw tight when a strain is put upon it; but absolute safety can only be found in observing both rules. In tying an artery surgeons always aim at making a reef-knot; but as there are four different ways in aiming at this same result, in which a string, with free ends, that has been placed under and across any body, such as an artery, may be tied, and as it seems natural to make the wrong turn, resulting in a granny, which is almost sure to slip, I believe that a simple rule, the observance of which must result in a properly made reef-knot, will be appreciated by many who would perhaps be loth to admit that they found any difficulty, and is worth placing on record. To exemplify: Having placed your ligature under and across the artery, take a free end in each hand; keep the end in the right hand in front of the end in the left hand in crossing the string so as to make it pass across, around, and up under the end in the left hand; it will still be in front of the other free end, although it has changed hands; keep it in front in again bringing it across, and complete the knot in the usual way; the result will be a reef-knot. If instead you pass the right hand end (which, after passing across, around, and up under the end in the left hand, is transferred as before to the left hand, and is still in front) behind the end that was in the left hand (but in making the knot has passed to the right hand), in completing the knot you will make a granny. Again, take an end in each hand, the end in the right hand being behind; keep it behind, and pass it, as before, across, around, and up under the end in the left hand, it will come up behind; still keep it behind, and on completing the knot a reef-knot will be the result. If, instead, before completing the knot, you allow it to pass in front of the other end, so altering its position with regard to its exit from around and under the other end, you will form a granny. In either case the

knot is begun differently, and may be completed in two ways, a right and a wrong way. [The rule simply is: keep the end that comes up under (from around the other in tying the knot) always the same side.] If it comes up in front of the other end, keep it in front of the other end in completing the knot. If it comes up behind, keep it behind, and you cannot help making a reef-knot; all that remains is to pull it tight.—*Braithwaite's Retrospect of Practical Medicine and Surgery.*

ON THE TREATMENT OF ACUTE RHEUMATISM.*

By E. MARKHAM SKERRITT, B.A., B.S., M.D.Lond., M.R.C.P;

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Next, what evidence have we that salicin and salicylic acid have any specific action in acute rheumatism? I take it that a specific remedy should—1. Cut short the disease; 2. Prevent relapses while under its influence; 3. Ward off complications.

1. *Influence in Cutting Short the Disease.*—We have already seen that, in a certain number of cases, these remedies have failed—salicin in 19.4 per cent., salicylic acid in 20 per cent.—and this without respect to dose.

2. *Prevention of Relapse.*—Under salicylic acid, relapse is mentioned in four cases; but these are not conclusive, as the acid had been previously stopped. My friend, Dr. Shingleton Smith, however, tells me that a patient of his had a relapse while taking the soda-salt. A case of my own gives very definite evidence of the occurrence of relapse under salicin. A young man was admitted into the Bristol General Hospital, suffering from a well marked first attack of rheumatic fever. Under twenty-grain doses of salicin every hour, the temperature was normal in two days; the dose was then gradually reduced to twenty grains every three hours. The temperature remained normal for six days; but then, while the patient was still taking twenty grains every three hours (the largest dose that Dr. Maclagan gave in any of his first series of cases), there was a relapse. This lasted five days, though the dose was increased to twenty grains every two hours, and, for one day, to twenty grains every hour. For nine days, the temperature was normal, and the patient went out, still taking fifteen grains three times a day; he then was readmitted in another relapse.

3. *Prevention of Complications.*—The following have occurred:—*a.* Heart-complications:—Under salicin, endocarditis came on in three cases, pericarditis in four; under salicylic acid, endocarditis developed in one case. *b.* Lung-complications:—Under salicin,

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* Concluded from page 106 of last number.

bronchitis and œdema, pneumonia, pleurisy; under salicylic acid, bronchitis, collapse, pneumonia. *c.* Hyperpyrexia:—These remedies have already contributed quite their proportion of those formidable cases of rheumatic fever in which there sets in a rapid rise of temperature, ending, if unsubdued, in death; salicin, four cases; salicylic acid, four cases.

These various complications have occurred without any apparent reference to dose; they have come on under small doses; they have appeared under large. Hence we see that salicin and salicylic acid have failed to cut short the disease; have failed to prevent relapses; have failed to avert complications; and, therefore, I consider that we have conclusive evidence that they are not specifics. To what, then, is their power due? They probably act simply as antipyretics. They have a very marked effect in other febrile conditions. In one hundred and sixty-four cases of typhoid fever, Reiss found that the reduction of temperature by the acid was very marked, and the duration of the disease was shortened, the average being only 13.1 days. If these results be confirmed, typhoid fever is cut short by one-half, and a specific action may just as fairly be claimed for the drug in this disease. In pneumonia, the effect of a large dose was very great, the temperature falling nine degrees or more—from 104 deg. to 95 deg., or even lower. As to the removal of the joint-affection by an antipyretic, we have a parallel in the disappearance of the pain from the joints that often follows the use of the most powerful antipyretic we possess—the cold bath. Indeed, Esmarch, several years ago, treated acute rheumatism by keeping ice constantly applied to the joints, with the result of lowering the temperature, easing the pain, and shortening the disease in a more marked way than by any other treatment.

There are certain *disadvantages* connected with the use of salicin and salicylic acid: the first is, that the dose is very large and very frequent; the next is that uncomfortable and even dangerous effects are produced in some cases; these I have no time to enumerate. Salicin has been said to be free from these ill-effects, but this is contrary to my own experience. I have found it cause deafness, noises in the ears, headache, extreme giddiness, repeated nausea and vomiting; several times so severe that the powders had to be stopped.

B. *Treatment of Complications, with Special Reference to Hyperpyrexia.*—I now proceed to the second division of the subject—the treatment of complications. The preventive effect of various remedies I have already discussed, and have concluded that no treatment will ensure the patient against the occurrence of any given complication. We may assume, however, that any remedy which shortens the disease will in the same proportion lessen the liability to complications of every kind; and, if our future experience accord with the past, we are justified in concluding that the chance of complications is least under salicin

and salicylic acid, because the duration of rheumatic fever has been shorter under these remedies than it has been under any other plan of treatment.

I will not detain you by a detailed description of the treatment of the various affections of the heart, lungs, and other parts, which may occur in rheumatic fever, and which must be managed on the principles that guide their treatment in other diseases. The one complication to which I wish to direct attention is Hyperpyrexia.

It is well known that, in acute rheumatism, as in other diseases, there may set in a rapid rise of temperature to a height incompatible with life, accompanied by evidence of profound nervous disturbance, and usually, in rheumatic fever, by disappearance of pain from the joints. The temperature may reach 110 deg., 111 deg., or nearly 112 deg. This has happened under all kinds of treatment: under alkalies, iron, quinine, bleeding, and, lastly, under salicin, salicylic acid, and salicylate of soda. Whatever view is taken of the pathology of this condition—a subject which cannot be discussed here—it has been found practically that treatment directed simply to the reduction of the temperature may save the patient's life. You are aware that a temperature above 106.5 deg. in rheumatic fever was formerly invariably fatal, and that it is to Dr. Wilson Fox that we owe the treatment by the cold bath that has succeeded where every other method has failed.

In the case which I am about very briefly to relate, salicin failed to control the disease. It is true that the dose—ten grains every three hours—was small; but the same dose has been given by others with reputed marked effect; and, in other cases in which hyperpyrexia has occurred, this objection cannot be urged.

The patient was a laborer, aged 36; he was admitted into the Bristol General Hospital on May 24th, 1876, with a well marked first attack of rheumatic fever. For five days, he took salicin without improvement. On the evening of the sixth, Mr. Harsant, the house-surgeon, found him delirious, with a temperature of 108 deg.; he at once put him into a cold bath; but, as the man was apparently dying, took him out in fifteen minutes, when the axillary temperature was 104 deg. Ten minutes later, the temperature had fallen to 102 deg. Within two hours, it was 105 deg., and the patient was again in violent delirium.

At 10.30 p.m., I arrived at the hospital, and found the patient delirious and violently moving the affected joints. The surface of the body was very dusky, dry, and pungently hot; the face dark and the eyes staring; the pulse very small and rapid, just perceptible at the wrist; the axillary temperature 108.6 deg. From this time the temperature was taken in the rectum. I had the patient again put into the bath. In ten minutes the temperature was 109.5 deg.; that was the highest point. The following table shows the effect of the bath—

Time.	Bath tem.	Temp. of patient.	Pulse.
10.40 p.m,	88 deg.	108.6 deg. (ax.)	?
10.50 "	70 "	109.5 " (rect.)	?
10 55 "	70 "	109 "	?
11.5 "	65 "	108 "	156
11.10 "	61 "	106 "	156
11.15 "	62 "	103.6 "	156
11.18 "	63 "	102 "	148

Time in bath, thirty-eight minutes; the temperature fell from 109.5 deg. to 102 deg., or 7 5 deg. in twenty-eight minutes, and, after removal from the bath, fell four degrees in ten minutes, thus coming down to 98 deg.; giving a total fall from 109 5 deg. to 98 deg., or 11.5 deg. in forty minutes.

During the whole time that the patient was in the bath, his aspect was that of a man who might die at any moment; he was pulseless at the wrist, and the heart was beating 156 in the minute; most of the while he was struggling more or less violently, at times quiet and almost comatose; the surface was intensely dusky throughout. Once the heart failed, and the patient seemed in the act of dying; but stimulants were applied, and the heart quickly recovered its rapid action. Towards the end, the patient struggled less, and became rather more observant. Brandy and ammonia were given freely during the bath. In twenty minutes after removal to bed, the patient was almost rational. When I left, at 1 a.m., the temperature was 99 5 deg., the pulse 104, the skin very much less dusky, and the patient perfectly quiet. From this time, there was steady, though slow, progress. Although the temperature several times rose to 103 deg , no attempt was made to control it by means of ice-bags or other cooling appliances; and the result justified the treatment, as there was no elevation of temperature above 103.2 deg There was no return of the acute joint-affection; merely slight occasional pains, chiefly muscular and tendinous. No quinine was given, nor any medicine, for nearly three weeks.

At what point ought the cold bath to be used? Dr. Wilson Fox (*Treatment of Hyperpyrexia*, p. 27) considers "107 deg. as the extreme limit to which the temperature should be allowed to rise before the external employment of cold is commenced." Death has occurred, however, before this height has been reached—at 105.8 deg. and 106 deg. Spontaneous recovery has never been known to occur when the temperature has passed 106.5 deg.; at this point, therefore, we may begin active treatment. It is important to remember that the bath should be prepared and everything got ready before this; for the final rise of temperature is often very rapid, and the patient may die before the treatment can be applied. In my case, the temperature went up 5.5 deg. in an hour and a quarter—from 104 deg. to 109 5 deg.

There is another practical point to be borne in mind: that there is almost always a considerable fall of temperature after the patient is removed from the bath, so that it is not safe to

bring the temperature down to normal in the bath. I remember, in the early days of this treatment, how a friend of mine reduced the temperature of a rheumatic patient to normal in the bath, and, to his consternation, found it would not stop there, but kept going down till it reached 93 2 deg.; there it was fortunately brought to a stand. The amount of this subsequent fall varies, but the average may probably be safely taken as four degrees. In accordance with this, I removed the patient from the bath when the temperature was 102 deg., and the subsequent fall, occurring in the next ten minutes, was exactly four degrees, bringing the temperature down to 98 deg.

If it be our misfortune to meet with a case of hyperpyrexia in acute rheumatism, we have two facts to remember and to act upon—and I am induced to insist upon this the more strongly because I have lately met with attempts to disparage the treatment—1. That the patient *must die* if left alone; 2. That the *only* treatment which has succeeded is the effectual external application of cold.

In concluding my brief survey of what has been done in the treatment of rheumatic fever, I quote Sir Thomas Watson:—"You may be sure when men's opinions concerning the treatment of a disease, which is of common occurrence and easy recognition, are thus unsettled and diverse—1. That no specific for that disease has yet been found; 2. That the disease is not very obedient, or not steadily obedient, to *any* remedial plan."

I sum up the following propositions.

1. We have no specific for rheumatic fever.

2. Salicin and salicylic acid appear to have had more influence over the disease than any other remedies, and they therefore deserve an extended trial.

3. These drugs lessen the chance of complications in the same proportion as they shorten the disease.

4. The value of statistics of limited numbers in acute rheumatism is small, owing to the uncertainty of the disease.

[Since the above paper was read, a wider experience of the effects of salicin and salicylic acid has been in accordance with the views I have expressed as to the mode of action of these remedies—that it is simply antipyretic. In cases of typhoid fever, I have met with as marked an effect on the temperature as in rheumatic fever, but without evidence of any specific action on the disease. To quote one example: in the case of a boy about twelve years old, 20-grain doses of salicin every hour for six hours reduced the temperature in twelve hours from 104.2 to 97 deg.; and a similar effect was produced on other occasions, yet the duration of the disease was apparently not influenced.—In comparing the effects of these drugs in acute rheumatism and in typhoid fever, it is important to remember that, while in rheumatic fever the characteristic lesions are peculiarly erratic and fugacious, in typhoid fever there is a definite local lesion that must run a more or less protracted course.]—*British. Med. Jour.*

REVIEWS AND BOOK NOTICES.

Fat and Blood, and How to Make Them. By S. Wier Mitchell, M.D. Lippincott & Co., Philadelphia. Eyrich, New Orleans.

It has seldom been our pleasure to read a more delightfully written book. The subject is taken well in hand, artfully guided, and without a skip, wins in 97 pages.

Dr. Mitchell treats of a very obstinate and harrassing class of cases: "nervous women, who, as a rule, are thin and lack blood." That class of patients the physician generally complaisantly diagnoses *spinal* IRRITATION.

The plan of treatment is philosophical; but in a large number of cases it is impossible to secure the proper nurses and surroundings to make the treatment practical.

Dr. M. insists on the isolation of patients from sympathetic friends and relatives; places them in bed, not allowing them to move except to empty rectum or bladder; feeds them to repletion on milk, and, later, on other nourishing articles of diet, and at the same time counteracts atony of the muscles due to inactivity, by systematic applications of massage and electricity.

Some of the cures resulting from this plan of treatment are marvelous, and in order that the readers may appreciate the points involved, the following case, from page 82, will do away with all obscurity.

Mrs. C., a New England woman, undertook, at the age of sixteen, a severe course of study, and in two years completed the whole range of studies, which, at the school she went to, were usually spread over four years. An early marriage; three pregnancies, the last two of which broke in upon the year of nursing; began at last to show in loss of flesh and color. Meanwhile she met with energy the multiplied claims of a life full of sympathy for every form of trouble, and, neglecting none of the duties of society or kinship, she yet found time for study and accomplishments. By and by she began to feel tired, and at last gave way abruptly, ceased to menstruate five years before I saw her, grew pale and feeble, and dropped in weight in six months from one hundred and twenty-five pounds to ninety-five. Nature had at last its revenge. Everything wearied her: to eat, to drive, to read, to sew. Walking became impossible, and, tied to her couch, she grew dyspeptic and constipated. The asthenopia, which is almost constantly seen in such cases, added to her trials, because reading had to be abandoned, and so at last, despite unusual vigor of character, she gave way to utter despair, and

became at times emotional and morbid in her views of life. After numberless forms of treatment had been used in vain, she came to this city and passed into my care.

At this time she could not walk more than a few steps without flushing and without a sense of painful tire. Her temperature was 97.5° F., and her white corpuscles were perhaps a third too numerous. After most careful examination I could find no disease of any one organ, and I therefore advised a resort to the treatment with full confidence in the result.

In this single case I give the schedule of diet in full as a fair example:

October 10.—Mrs. C. remained in bed at entire rest. She was fed, and rose only for the purpose of relieving the bladder or the rectum.

10.—Took one quart of milk in divided doses every two hours.

11.—A cup of coffee on rising, and two quarts of milk given in divided portions every two hours. A pill of aloes every night, which answered for a few days.

12 to 15.—Same diet. The dyspepsia by this time was relieved, and she slept without her habitual dose of chloral. The pint of raw soup was added in three portions on the 16th.

17 and 18.—Same diet.

19.—She took, on awaking at 7, coffee; at 7.30, half-pint of milk; and the same at 10 a. m., 12 m., 2, 4, 6, 8, and 10 p. m. The soup at 11, 5, and 9.

23.—She took for breakfast an egg and bread and butter; and two days later (25th) dinner was added, and the iron.

On the 28th this was the schedule:

On waking, coffee at 7. At 8, iron and malt. Breakfast, a chop, bread and butter; of milk, a tumbler and a half. At 11, soup. At 2, iron and malt. Dinner, closing with milk, one or two tumblers. The dinner consisted of anything she liked, and with it she took about six ounces of Burgundy or dry champagne. At 4, soup. At 7, malt, iron, bread and butter, and usually some fruit, and commonly two glasses of milk. At 9, soup; and at 10, her aloe pill. At 12 m., massage occupied an hour. At 4.30 p. m., electricity was used for an hour in the manner which I have described.

This heavy diet-list, reached in a few days by a woman who had been unable to digest with comfort the lightest meal, seemed certainly surprising, I have not given in full the amount eaten at meal-time. Small at first, it was increased rapidly by the patient's growing desire for food, and became in a few days three full meals.

It is necessary to see the result in one of these successful cases in order to credit it. Mrs. C. began to show gain in flesh about the face in the second week of treatment, and during her two months in bed rose in weight from ninety-six pounds to one hundred and thirty-six; nor was the gain in color less marked.

At the sixth week of treatment the soup was dropped, wine

abandoned, the iron lessened one-half, the massage and electricity used on alternate days, and the limbs exercised as I have described. The usual precautions as to rising and exercise were carefully attended to, and at the ninth week of treatment my patient took a drive. At this time all mechanical treatment ceased, the milk was reduced to a quart, the iron to five grains thrice a day, and the malt continued. At the sixth week I began to employ strychnia in doses of one-thirtieth of a grain thrice a day at meals, and this was kept up for several months, together with the iron and malt. The cure was complete and permanent, and its character may be tested by the fact that at the thirtieth day of rest in bed, and after five years of failure to menstruate, to her surprise she menstruated, and continued to do so with regularity until eighteen months later, when she became pregnant. The only drawback to her perfect use of all her functions lay in asthenopia, which persisted nearly a year after she left my care.

Mémoire Sur l'emploi du Chloroforme dans l'accouchement, par le Dr. Armand Mercier. Nouvelle-Orleans: Imprimerie Cosmopolite, 98 rue de Chartres. 1877.

This interesting brochure is a paper read before the "Athénée Louisianais," at its session held October 11th, 1876. The author simply treats us to the facts connected with some examples of his large experience with chloroform in labor, whether natural or difficult. Dr. Mercier has been very cautious in the administration of this anæsthetic, and a retrospect of his practice and the results must be to him a happy theme. We commend the paper to the attention of our confrères, as containing interesting and instructive facts. This is especially true of those pages which exhibit his observations upon the simultaneous use of chloroform and ergot. B.

An Index of Diseases and their Treatment. By Thomas Hawkins Tanner, M.D., F.L.S. Second Edition, Revised by W. H. Broadbent, M.D. Pp. 432. 1877. Lindsay & Blakiston, Philadelphia. A. P. Harrington, New Orleans.

This book is what its title indicates, a brief compendium of medicine for hasty consultation by the busy practitioner. The symptoms and differentiation while concise are sufficiently clear to prevent mistakes, and the treatment fully up to date. Like all of Dr. Tanner's works, it is strictly practical and free from any excess of verbiage. It is a medical library in a concise

form—a true labor-saving reference book, fitted, however, only for the practitioner. To the beginner, or he who is learning the principles of medicine, it is worse than useless.

Lindsay & Blakiston's Physician's Visiting List for 1878.

This work is now in the 27th year of its publication. It was the first, and for many years the only book of the kind published in this country. It has become so general a favorite, that to meet the demand the publishers find it necessary to issue it very early in the season.

Pamphlets Received.

Lindsay & Blakiston's Classified List of Medical Works, with the reduction in price to suit the times.

EDITORIAL.

A Growing Nuisance.

The following extract from the *American Practitioner* for September is so exquisitely apropos, that we adopt it as an editorial, with a vote of thanks to the said journal, and without any sacreligious mutilation except the interpolation of a very slight, but to us rather important parenthetical request.

A Growing Nuisance.—The please-send-me-a-specimen-copy-of-your-valuable-journal-man is plainly on the increase. He is becoming more frequent; in fact, he is without number and ubiquitous.

In former days he hid his request—but never a stamp for return postage—in an envelop. Latterly he selects the curtly business "postal" card, thereby cheapening the cost to him a couple of coppers, and making an inclosure impossible. In all the years of our editorial life—and we trust our "sands have" not yet "run out" by a long shot—we have never seen the color of the send-me-a-specimen-copy-man's money. We are beginning to fear we never shall. Hope, indeed, has been so long deferred, that it has fled our breasts entirely.

Musing, the other day, this please-send-me, etc., pest—this unknown but oft-recurring nuisance—rose to our mind's eye as

he cut the wrappers from the American Practitioner, the New York Medical Journal, and the St. Louis Medical Journal, all reaching him by the same mail. For no "pent-up Utica" puts a limit to the demands of this profitless patron. He longs to hear from the several sections of our broad realm. His vocabulary contains no north, no south, etc., but embraces the boundless continent. His love of knowledge is so intense that it swallows up every other consideration, thought, principle. In another month he will draw on the sunny south—very sunny just now—for his supplies. And then he is as impartial as he is insatiable. His cravings will demand in turn the Nashville, the New Orleans, and the Atlanta journals. An occasional quarterly is needed to sandwich any failure of the mails; and the swift-recurring weekly is, alas! doubtless taken in vast numbers as a "condignment," as poor Artemus Ward used to say of mustard. But with all his gettings, this chronic abomination has never gotten his dues, which would be exposure. Who will see that he has them? We will.. No more postals, O man without bowels! but inclose the fractional quarter, (make it a half.—N. O. M. & S. J.,) and then get your reading without filching from your betters.

Sale vs. the Louisville Medical College.

Our constant readers will recall a notice of a suit (Sale vs. the Louisville Medical College) published some months ago. In compliance not only with request, but as an act of journalistic courtesy, we publish the following counter statement of this legal brush at a medical college.

From the July number of the Chicago Medical Journal and Examiner.

Our readers, who have noticed a report of this suit in the June number of this periodical, may also hear "*alteram partem.*" Here is the account, as published over Dr. E. S. Gaillard's signature, in the "Richmond and Louisville Medical Journal:"

"In September last, Mr. Sale, a medical student and the plaintiff in this suit, entered the college mentioned. He paid his fees. A few weeks subsequently he was offered (with others) free tuition in a Louisville Medical Institution. This offer was a part of the sworn testimony of the plaintiff. He accepted it, and requested a return of his money. This request was of course not granted. He then asked for his tickets. He was told that this College never gave its tickets (the evidence of attendance upon a course of lectures) until the last month of the course. Had the tickets been given there would have been no suit, but they were withheld, and the suit invited. The plea in this suit was failure to comply with promises made. In the garbled version of the magistrate's decision published in the 'Courier-Journal,' and sent to the Medical Press everywhere, and to the

alumni of the Louisville Medical College, it is admitted that this plea could not be, and had not been, sustained by the evidence.

The so-called 'judgment' of the magistrate was given on the ground that the present Faculty were not legally elected.

"The Book of Minutes of the Proceedings of the Board of Trustees shows that the members of the Faculty were not only legally elected by the present Board, but that one of the last acts of the old Board was to elect them (with one exception) before adjournment. It may be asked why was not this book produced and such a 'judgment' prevented. The answer is simple: it was in possession of the persecuted Secretary of the Board of Trustees, Dr. B. M. Wible, who was ill and soon after died, and was found after his death, and after the so-called 'judgment' had been rendered, and copies of it had been forced into a daily paper (which never publishes the petty business of a magistrate's court), and actively disseminated for purposes too evident to require indication."

But while in the very act of making this publication in order that we may "be just though the heavens fall," in comes that fiercest and most audacious of all iconoclasts, the *Louisville Medical News*, and deposeth—in the most emphatic italics and caps, that—"*The Secretary of the Board of Trustees was persecuted by nobody, unless by his associates, and* WAS PRESENT *at the trial.*" Our only comment is, as above, "audi alteram partem, et alteram partem."

First Tour of the American Floating Sanitarium.

The wise man said there was "nothing new under the sun." We have no accounts of floating sanitariums in his day, and those who went "down to the sea" in ships, though in full tide of health, were considered impetuously rash. Now this thing is so changed that even the sick man "goes down to the sea" for a renewal of his life. Our readers are referred to an advertisement in this number of the JOURNAL. In the abstract, we commend the enterprise, while some of our profession, who are altogether trustworthy, do not hesitate to recommend this especial expedition.

Wyeth's Preparations.

A sufficient trial, both in hospital and private practice, of the preparations of this house, enables us to commend them as being reliable and convenient medicines.

METEOROLOGICAL AND MORTALITY REPORTS.

Meteorological Report for New Orleans—August.

Day of Month.	Temperature.			Mean Barometer Daily.	Relative Humidity—Daily.	Rain fall—inches
	Maximum.	Minimum.	Range.			
1	96.5	82	14.5	29.971	60.33	.00
2	94	81	13	29.902	64.66	.01
3	92	80	12	29.885	69.33	.00
4	92	79	13	29.958	67.66	.02
5	93.5	81	12.5	29.985	62.66	.00
6	95	82	13	29.948	70.66	.00
7	92	81	11	29.918	75.33	.01
8	88	78	10	29 906	82.66	.54
9	88	77	11	29.966	66.66	.00
10	90	79	11	30 033	51.33	.00
11	91	78	13	30.064	49.66	.00
12	91	75	16	30.040	60.00	.00
13	91	77	14	30.060	51.33	.00
14	89	78	11	29.960	59.33	.00
15	89	76	13	29.940	55.66	.00
16	87	76	11	29.989	58.66	.00
17	89	75	14	29.969	62 66	.00
18	87	77	10	29.952	72.66	.34
19	85	73	12	29.943	74 66	.00
20	86	75	11	29.935	66.00	.00
21	88	77	11	29.848	73.00	.55
22	85	75	10	29.846	67.66	.00
23	87	73	14	29.960	58.33	.00
24	87	73.5	13.5	30.033	60.66	.00
25	81	75	6	30.019	68.66	.10
26	89	75	14	30.013	63.00	.00
27	81	75	6	30.070	82.33	.80
28	85	76	9	30.145	84.66	.27
29	88	75	13	30.143	69 66	.00
30	92	78	14	30.085	63 00	.00
31	92	79	13	30.052	68.66	.00
Mean..	89	76.5	11.5	29.994	63.89	Total. 2.64

Mortality in New Orleans from August 20th, 1877, to September 23d, 1877, inclusive.

Week Ending	Yellow Fever.	Malarial Fevers.	Consumption.	Small-Pox,	Pneumonia.	Total Mortality.
Aug. 26.....	0	21	11	3	4	99
Sept. 2.....	0	15	17	5	4	106
Sept. 9.....	0	16	9	3	4	105
Sept. 16.....	0	14	15	2	1	113
Sept. 23.....	0	16	20	4	2	108
Totals.....	0	82	72	17	15	531

THE

NEW ORLEANS

MEDICAL AND SURGICAL JOURNAL.

NOVEMBER, 1877.

ORIGINAL COMMUNICATIONS.

NOTES ON THE HISTORY OF DISINFECTION AND DISINFECTANTS.

BY JOSEPH JONES, M.D.,

Professor of Chemistry and Clinical Medicine, Medical Department University of Louisiana, New Orleans; Member of Board of Health, State of Louisiana.

No. II.

DISINFECTANT ACTION OF SULPHUROUS ANHYDRIDE AND SULPHUROUS ACID.

The efficient agents in the preceding thorough system of disinfection as practiced in the British Navy, nearly a century ago, were *free ventilation, heat, cleanliness, lime, and sulphurous acid gas.* The last agent appears to have been the true and essential disinfectant, or destroyer of the organic poison inducing the contagious fever.

Sulphur, the first disinfectant employed by the ancients, and called sacred or divine by the Greeks, has maintained its reputation from the time of Ulysses, who, after killing the suitors of Penelope, fumigated the palace with burning sulphur, to the present moment, when it is chiefly relied on for the destruction of the poisons of contagious diseases.

The advances of modern chemistry have enabled us to comprehend the effects of burning sulphur upon the organic materials causing contagious diseases.

The dioxide of sulphur, sulphurous oxide or sulphurous anhy-

dride, resulting from the combustion (oxidation) of sulphur, is at ordinary temperatures a colorless, irrespirable gas.

As it is more than twice as heavy as atmospheric air, it may be collected by displacement, and when introduced into the hold of a ship or in any confined space, will gradually accumulate from the bottom upwards, and thus expel the atmospheric air. It is also important to note that sulphurous anhydride may very readily be condensed into the liquid state by a pressure of three atmospheres, or by a freezing mixture of ice and salt. By its evaporation it produces intense cold—sufficient even to freeze itself, and rapidly to freeze water in which it is poured. If the gas be generated, by pouring muriatic acid upon the sulphite of lime or soda, in a form of apparatus similar to that of Babcock's fire engine, we may not only thus in a very short space of time evolve a large volume of gas, without the danger of fire, as in the burning of sulphur, but we are also able by such an arrangement to generate the gas under high pressure; and when the liquid is allowed to escape in the hold of a ship, or in any confined space, a degree of cold may be induced which will be an important factor in the purification of the atmosphere.

When sulphurous anhydride comes in contact with the moisture of the atmosphere, or with water, it is converted into sulphurous acid.

Both sulphurous anhydride and sulphurous acid act as powerful reducing agents. Sulphurous acid bleaches by forming colorless compounds with certain coloring matters, but it does not, like chlorine, decompose the coloring matter; for the sulphurous acid may either be expelled by a stronger acid, or it may be neutralized by an alkali, and the color will be restored.

Sulphurous anhydride is a powerful antiseptic, its power of arresting fermentation having been recognized by the Greeks and Romans in the manufacture of wine, and it consequently has long been valued as a powerful disinfecting agent.

Meat which has been exposed to the action of sulpharous anhydride gas, and then sealed up in metallic canisters filled with nitrogen to which nitric oxide has been added to remove the last traces of oxygen, may be preserved fresh for years. In the process proposed by Mr. Gamgie for the preservation of fresh meat by sulphurous acid, the animal is killed with carbonic oxide gas, and the meat is kept in that gas and sulphurous acid. Meat may thus be kept fresh and of the original color for six weeks.

Meat, vegetables and fruit, subjected to the fumes of burning sulphur and charcoal, and then immersed in water containing the resulting gases in solution, resist decomposition and retain their natural colors for weeks and months.

It is but just to suppose that sulphurous anhydride and sulphurous acid act as true disinfectants in a complex manner. Thus sulphurous anhydride arrests decay in organic matter; it deoxidizes, and afterwards gives off its oxygen, and acts as an oxidizer; it also acts as an acid and dissolves animal matter.

Just as sulphurous acid preserves meat from putrefaction or change, in a similar manner without doubt it acts upon animal poisons and arrests them, changes and so alters their composition as to destroy their poisonous action.

In like manner, sulphurous anhydride and sulphurous acid destroy living germs, whether animal or vegetable.

The theory of the action of sulphurous acid held by those who regard the germs of contagious diseases as of parasitic or vegetable origin, has been well expressed by Dr. Dewar,* of Kirkcaldy. He says:

"It may be well to premise that our adoption of such an auxillary implies a belief that the enemy of which we are in pursuit lurks about indefinitely; that its vitality can outlive ordinary processes of decay; and that it is transmitted by, or at least located in, the atmosphere. This being the case, we may well assume that the germs are parasitic, most of them of vegetable origin; that some retain their peculiar properties independent of temperature or climate; and that some even can (as in cholera), in a dry climate, in the form of dust, be carried by the wind to distant points, when, as they absorb moisture, they retain their power of spreading devastation."

He uses for cattle diseases, "a chaffer two-thirds full of red cinders, a crucible inserted therein and a piece of sulphur." He treated his own cattle to this four times a day, the sulphur for six cattle being about as large as a man's thumb, and burning for about twenty minutes, the attendant being shut in along with the cattle. The cases of cure are said to be numerous; a horse treated accidentally was cured of grease in the heels, and many cases of cattle plague being averted from previously unhealthy houses were mentioned.

* Disinfectants and Disinfection, by Robert Angus Smith, page 44. Edinburg, 1869.

Dr. James Dewar* has also strongly recommended sulphurous acid as a topical application to wounds and sores, and has adduced very successful cases in which it was thus employed. The wounded surfaces should either be sponged with the acid of full strength, or the spray of the fluid acid should be applied by a suitable vaporiser. Cases of wounds have been recorded, in which after dressing in this manner there was rapid healing, with no discharge whatever; but the dressings require frequent changing, at first about once every six hours.

Mr. Crooks† says: "A mixture of sugar and yeast was kept in a warm room until it became in a state of active fermentation. An aqueous solution of sulphurous acid was added, when the fermentation instantly ceased; when examined under the microscope after treatment with sulphurous acid, no apparent change was observed in the appearance of the cells."

In the use of sulphurous acid for the disinfection of ships, hospitals, and rooms, it should ever be remembered that it is poisonous to both vegetable and animal life, and that even in small quantities it acts as an irritant to the lungs, causing violent coughing, which becomes painful and dangerous according to the amount used. Sulphurous acid fumigation is not therefore applicable to wards of hospitals, or cabins of ships, or rooms inhabited by human beings. All living beings should be removed from the space to be disinfected. This may readily be accomplished by fumigating wards and rooms and the different portions of a ship seriatim, or in succession. The fumigation should be followed by thorough cleansing of the furniture, beds and floors, and whitewashing, in order to remove as far as possible even those portions of contagious matter which have been disinfected and embalmed by the gas; and when the poison is concentrated and virulent, the cleansing and whitewashing should be followed by a second fumigation.

Heat as a Disinfecting Agent.

It has been long known that heat acts as a powerful disinfectant by its power of coagulating albuminous substances, and by its desiccating effects.

The absorption of noxious effluvia by cloths or soft and porous

* Medical Times and Gazette, September 21st, 1869, page 318.

† On the Application of Disinfectants.

articles of merchandise, has long been recognized as a fact by men who have directed special attention to this subject. Many of the liquid disinfectants which have at various times been proposed, are not applicable to articles of clothing; and the common practice of baking cloths in ovens is liable to lead to their destruction, owing to the impossibility of regulating the temperature to which it is necessary to expose them, and the plan of Messrs. Davison and Symington combines economy with certainty of disinfection, and consists in exposing the articles of clothing in a large chamber to rapid currents of air heated to a temperature insufficient to injure them, varying from 200° to 250° F. In the case of infected clothing, it is obvious, that while a high temperature tends to destroy the animal poisons, a rapid current of air constantly passing through the chamber tends to carry them off. The temperature of the current of air can be so regulated that common albumen is speedily dried into a yellow transparent solid, without coagulation, or if necessary, the heat may be increased from 400° to 500°, according to the nature of the articles which are exposed.

Dr. Copland directed the attention of the profession to this process, and observes that, "the great advantage of this method is its easy applicability to all kinds and to any number of objects and articles, without injury to their textures or fabrics."

Dr. Andrew Ure,* writing in 1854, says: "From an inspection of one of these chambers, when the temperature of the current of air was 116°, we can state that the process of Messrs. Davison and Symington for the drying and disinfecting the clothing of cholera and fever patients, will be far more efficacious than the common plan of washing and baking. In our opinion, an apparatus of this kind fitted up in large hospitals, infirmaries, prisons and workhouses, as well as all quarantine stations, would be admirably adapted to prevent the diffusion of contagious diseases."

This method might be rendered still more efficacious by combining with the air the vapor of carbolic acid.

It would manifestly be very difficult, if not impossible, to apply heat and hot air, or even steam and the so-called superheated steam, to the disinfection of the holds and cabins of ships, or the large wards of hospitals, and for such purposes the sul-

* Dictionary of Arts, Manufactures and Mines. Am. Ed., vol. i., p. 583.

phurous acid fumigation is far more efficient. The hot air and steam process is evidently applicable chiefly to infected clothing, and woollen and cotton goods and bedding.

As it is well known that the cause of yellow fever is arrested by cold, it has been proposed to subject the interior of ships and rooms to the action of intense cold. Aside from the difficulty of the artificial congelation of the air and moisture in the holds and cabins of ships, it would appear that the poison inducing the disease may again be excited to renewed activity after the melting of the ice. Such a process could not reach the true source of the difficulty, and is far inferior and at the same time far more expensive and difficult than the sulphurous acid fumigation, which combines at once simplicity, economy, efficiency, and permanency of effects.

Carbolic Acid (Phenic Acid, Phenol, Phenyl Alcohol, or Coal Tar Kreasote); its Antiseptic Properties.

An important advance in sanitary science was made when the antiseptic and disinfectant virtues of carbolic acid (phenic acid, phenol, phenyl alcohol, or coal tar kreasote) were recognized and practically applied.

Such compounds as coal, bitumen, asphalt and petroleum, which contain carbolic acid, and compounds closely allied thereto in nature and properties, are widely spread over the globe, and have been used for ages as antiseptics. The Egyptians employed resinous and bituminous compounds in embalming their mummies; resinous aromatic substances, incense and tar, were used by the Greeks and Jews to arrest and remove pestilential diseases; tar and bitumen were used by the ancients for the preservation of wood, and especially the timbers of boats and ships from decay and the ravages of insects and marine worms; and some of these compounds were employed by the Romans to arrest vinous and acetous fermentation in the preparation of wine.

The Romans sometimes placed their fermenting wines in vessels lined with pitch, or threw powdered pitch into the fluid, or adopted the simple expedient, the *rationale* of which was probably identical, of plunging therein a blazing pine torch; and there is no doubt that in their operations carbolic acid, in the guise of tar, controlled the vinous and prevented the acetic fermentation.

Wood steeped in asphalt, or coated with this substance, will last for centuries, as has been clearly shown by the results of the experiments of the Assyrians and Egyptians. The experience of four thousand years has shown that asphalt is one of the most indestructible of all substances, and at the same time that it is the most powerful of all preservers of animal and vegetable substances. Not only are the Egyptian mummies and burial cases, which have been steeped in hot asphalt, in a state of preservation at the present time, but the delicate fabrics surrounding the mummies have been preserved in their original strength and beauty. Asphalt has been used by both ancient and modern nations, from the time that Noah fulfilled the divine command to "pitch" the ark "within and without with pitch," for the preservation of ships and boats, and wooden structures, from decay.

The first structure of any magnitude erected after the flood—the Temple of Belus—was cemented with bitumen; and according to Herodotus, asphalt was used as a cement for the union and preservation of the bricks composing the immense wall and temples of Babylon.

The Spaniards discovered in the West Indies, three centuries ago, the important fact that the asphalt with which Cuba and Trinidad abound, was the best and only preservation of the bottoms of their ships against decay, and the destructive action of the marine animals with which the warm salt waters abounded. The whole country around Havana is impregnated with bituminous matter to a surprising extent; even the solid quartz, the serpentine rocks and the veins of chalcedony, have cells and cavities filled with liquid pitch or asphalt. Even in the Bay of Havana, the shore at low water abounds with asphalt and bituminous shales in sufficient quantity for paying of vessels. It is stated that in buccaneering times signals used to be made by firing masses of this chapapote, whose dense columns of smoke could be recognized at great distances and served as signals to vessels at sea; and it is even a matter of history that Havana was originally named by the earlier visitors and settlers, *Carené*, "for there we careened our ships, and we pitched them with the mineral tar which we found lying in abundance upon the shores of this beautiful bay."

In 1854, I instituted an extended series of experiments upon

the antiseptic properties of various substances, and have continued them as time and opportunity served.

The first series of experiments related to the preservation of animal structures; the second related to the arrest of decomposition in diseased and gangrenous ulcers, cancers, and gun-shot wounds; and the third series related to the preservation of wood from decay, and the destructive action of marine animals.

A large number of the specimens thus preserved from decay are at the present time deposited in the Museum of the Medical Department of the University of Louisiana. One of the most striking specimens consists of both feet of a man, whose lower extremities were frozen in the swamps of Louisiana. Not only was the decomposition caused by the gangrene arrested in this case, but the feet exhibit the black gangrenous portions, the lines of demarcation, and the sound skin. It was determined by these experiments, that it was possible to preserve not only limbs and organs, but also entire animals, by means of various antiseptics, as arsenious acid, bichloride of mercury, and carbolic acid.

Wood subjected to the action of hot asphalt and carbolic acid, not only resisted decay, but also, when immersed in the waters of the Gulf of Mexico, resisted the action of marine worm (*teredo navalis*), which destroys annually an immense amount of property, in all seaports, and along all coasts in warm climates. The late General Braxton Bragg, who as an engineer took the liveliest interest in the method of preserving wood from decay and the action of the *teredo navalis*, carried out a careful series of experiments, by the aid of the United States Engineers and the civil engineers of the more important railroads, upon the samples of wood prepared by myself, and in all cases the wood immersed in Mobile Bay, Pensacola Harbor, Bay St. Louis, Galveston Harbor, and Matagorda Bay, resisted decay and the action of marine animals.

History of the Discovery of Carbolic Acid, and its Application to Medical and Sanitary Science.

Carbolic acid was discovered by Runge, in 1834, who experimentally determined its disinfecting properties. In 1844, M. Bayard introduced a powder as a disinfectant in which coal tar was an ingredient. In 1851, Mr. Calvert, of Manchester, made many experiments with carbolic acid, using it for preserving

flesh from putrefaction, injecting it into the arteries of dead animals, and demonstrating its power to prevent putrefaction and to check fermentation.

Mr. Robert Angus Smith, in his valuable work on Disinfectants and Disinfection, published in 1869, says: "The use of carbolic acid on a large scale was first brought prominently forward by myself and Mr. McDougal, so far as I know, about fourteen years ago, but all its essential properties were known before. Mr. McDougal, by using it in McDougal's Powder, has made it famous, and its fame has caused a similar powder to be made in other countries and by other persons. He used it also for wounds and for destruction of insects."

"For the preservation of manure it is as marvelous as for the preservation of meat, whilst it does not destroy the fertilizing power, but preserves all the elements, as if frozen, from all change.

"It was recommended by the author (Robert Angus Smith) 'for the prevention of decomposition in sewers and in sewer rivers, until they could be more thoroughly purified.' In a treatise on Süvern's *System*, by Dr. Hubert Grouven, the same mode of purifying sewers is recommended, and said to be on trial in Leipzig.

"The mixture used is a little different:

"1 lb melted chloride of magnesium;

"3 lbs of lime;

"$\frac{1}{4}$ lb of coal tar.

"Mr. McDougal has long used tar-oil and lime for the land at Carlisle. I still think that it would be better to pour this on the streets, and to let it disinfect all that is found there, running it then into the sewers and preventing putrefaction there, as it is better to prevent than to interrupt the formation of unwholesome gases.

"The great advantage of carbolic acid is that it is a liquid slightly volatile; it is therefore easy to throw it down anywhere, and to cause it to penetrate into every corner of a building, or to fill the air of a neighborhood."—pp. 63, 64.

It is evident from the preceding statement, that the investigations on the value of carbolic acid, as a disinfectant, were commenced by Mr. Robert Angus Smith, about the year 1855.

M le Beuf, of Bayonne, about 1859, employed crude carbolic acid in the form of a saponaceous emulsion, and associated with

his labors M. Lemaire, of Paris. These investigations established the value of the emulsion as an application to gangrenous ulcers. About the same time Rüchenmeister, of Dresden, used carbolic acid in medical and surgical practice, and in arresting putrefaction and preventing the manifestation of fungi.

In 1860, M. Lemaire established the value of coal-tar applications in the treatment of wounds, and demonstrated that carbolic acid was the active agent in effecting the changes; and in an elaborate treatise published in 1863, he narrated a series of investigations in which carbolic acid was employed as a means for the destruction of low forms of animal and vegetable life, as a preventative of fermentation and putrefaction, as an external application in cases of ulcerating and suppurating surfaces, as well as an internal remedy in zymotic and other diseases.

Coal-tar was used in the treatment of gun-shot wounds, to a limited extent, by the Southern (Confederate) surgeons, during the American civil war, 1861–5.

The occurrence of cattle plague in England, in 1865, gave an impetus to the study of disinfectants, and important additions to sanitary science were made by the investigations of Dr. Angus Smith and Mr. Crookes.

The Appendix to the Royal Commissioners' Report on the Cattle Plague contains the following.

"According to the principles laid down, the air must be treated, and when there is no disease there is only a secondary use in treating anything besides the air.

"Several cow-houses have been treated with carbolic acid with very excellent results. The mode has been first to remove from the floor the mass of manure which too often adheres to it; secondly, to sprinkle the floor with strong carbolic or cresylic acid. Next to wash the walls, beams and rafters, and all that is visible in the cow-house, with lime in which is put some carbolic acid (1 to 50 of the water used), or with strong carbolic acid alone. Next to make a solution containing 1 of carbolic or cresylic acid to 100 of water, or perhaps still better, 60 of water, and to water the yard and fold until the whole space smells strongly of the acid. Only a few farms have been treated in this way, so far as I know, but in each it has been successful.

"It may be well to give the cattle a little of the weak solution of carbolic acid, but this has not been so fully tried as the external use. The washing of the mouth and entire animal with

the weak solution may be attended with good results, especially in the early stage of disease."

Mr. Crookes, who made elaborate experiments with carbolic acid, in his Report gives details of experiments in which the acid was injected directly into the blood-vessels of cattle. Although the experiments with the injection of carbolic acid into the blood were too few to permit of any practical conclusions as to its therapeutic effects when administered in this manner, nevertheless Mr. Crookes demonstrated that it reduces the animal temperature, and does not necessarily prove fatal when injected in the amount of 1 part to 10,000 parts of blood.

In 1865, Professor Lister commenced the employment of carbolic acid as an application to wounds and abscesses attended with suppuration, and obtained results which confirmed the accuracy of those previously announced by M. Lemaire and others.

Mr. Lister has continued his investigations up to the present time, and by his energetic and intelligent advocacy of carbolic acid for the treatment of wounds in England, France, Germany and America, has succeeded in directing the minds of the profession to the value of this agent, and rendered popular the so-called *antiseptic system* in surgery. It would be foreign to our purpose to adduce in this connection the mass of testimony recorded by Professor Lister and others, or our own experience in the treatment of gun-shot wounds, extending from 1863, as to the value of carbolic acid as a local application to wounds.

Value of Carbolic Acid as a Disinfectant and Antiseptic in Asiatic Cholera and Cattle Plague.

During the outbreak of cholera in 1866, carbolic acid was put to a practical test, both in England and America, and the reports of the medical and sanitary officers, testifying to its efficiency, may be found in the Registrar General's Report on the Cholera Epidemic of 1866, in England.

The intelligent and systematic use of carbolic acid and other disinfectants in North America, for the arrest of cholera and other contagious diseases, was inaugurated by the Metropolitan Board of Health of New York, during the cholera epidemic of 1866, and the marked success achieved in the limitation of the disease was largely due to the untiring and efficient labors of the eminent American sanitarian, Dr. Elisha Harris. The prevalence of cholera in various parts of Europe, and the almost abso-

lute certainty of its appearance in America during the year 1866, stimulated the Metropolitan Board of Health to great activity immediately upon its organization, to prepare the Metropolitan District for the arrival of the epidemic. Under the direction of the Board, a disinfectant depot and laboratory were established in a building, No. 308, Mulberry street, immediately adjacent to the central office, and placed under experienced and able officers and assistants. The laboratory was constantly used for experiments in the use and combination of various disinfectants, and the men trained for the proper and faithful application of the same. This duty, as the season advanced, became of a most laborious and often hazardous character. The men were constantly visiting infected districts, entering the houses there, and handling bedding and clothes soiled by the dejections of cholera patients. They were obliged to disinfect all bodies dead of cholera, and frequently to place them in coffins and remove them to the Morgue.

Immediately upon the arrival of the steamship *Atalanta*, with its company of cholera sick, in the Bay of New York, in November, 1865, Dr. Elisha Harris,* by request of the Citizens' Council of Hygiene, prepared a memorandum on preventive measures against the epidemic, from which we extract the following paragraphs concerning cholera disinfection.

"Let the excrementitious matters from the sick be disinfected in the vessel soon as voided, by means of carbolate of lime, sulphate or proto-chloride of iron, coal-tar, carbolic acid, or permanganate of potash, and let no person directly use the privy into which such materials are emptied, while cholera is prevailing. Whenever practicable, let the evacuated matters be deeply buried in the earth, and immediately covered with quick-lime or coal-tar and gravel.

"Let all the vessels and clothing that are used by the patients be immediately cleansed with boiling water and soap, or alkaline chlorides or permanganates.

"Preserve the utmost degree of personal cleanliness of the sick and their attendants.

"To absorb moisture and putrid fluids, use fresh stone lime finely broken; sprinkle it abundantly on the place to be dried, or for damp rooms place a large number of plates filled with the lime powder, and not with kalsomine.

* Annual Report of the Metropolitan Board of Health, 1866, pp. 206–217.

"To absorb putrid gases, use charcoal powder. The coal must be dry and fresh, and should be combined with lime.

"To give off chlorine, to absorb putrid effluvia, and to stop putrefaction, use chloride of lime as lime is used; and if in cellars and close rooms the chlorine gas is wanted, pour diluted sulphuric acid or muriatic acid upon your plates of chloride of lime occasionally, and add more of the chloride.

"To disinfect the discharges from cholera patients, and to purify privies and drains, dissolve ten pounds of copperas in a pailful of water, and pour a gallon or two of this strong solution into the privy, water-closet or drain, every hour, if cholera discharges have been thrown into these places; but for ordinary use to keep privies from becoming offensive, pour a pint of this solution into every water-closet, pan or privy seat, every night and morning. Bed-pans and chamber vessels are best disinfected in this way by a teacupful of the copperas solution. Add the same quantity of carbolic fluid (diluted carbolic acid) or coal-tar powder, to insure permanent disinfection. Chloride of zinc, or proto-chloride of iron may be substituted for the sulphate of iron.

"Permanganate of potassa may be used to disinfect clothing and towels from cholera and fever patients during the night, or when such articles cannot be instantly boiled. Throw the soiled articles immediately into a small tub of water, in which there has been dissolved an ounce of permanganate salt to every two gallons of water, until the clothing is boiled, and see to it that the permanganate salt is added in just sufficient quantity to keep up a purple or red color in the water that covers the clothing. A pint of 'Labarraque's Solution of Chlorinated Soda' may be used for the same purpose in the tub of water, if the clothing is to be soon boiled, but must not be trusted for permanent disinfection. Either of these substances may be used in cleansing the soiled parts of the body of sick or dead persons, and may be used in bed-pans, etc. The permanganate solution will instantly disinfect and deodorize whatever it touches, but its action continues only while it gives a purple or reddish color.

"Carbolic acid and the coal-tar disinfectants are the most efficient and permanent antiseptics. The crystallized acid (costly) will dissolve in one hundred times its own weight in water. A tablespoonful of the solution will disinfect a chamber vessel. The fluid acid (cheap), seventy per cent. strength of the crystal-

lized, is most valuable for common use. Dilute it in 25.50 or more parts of the iron solution for fluid use; or in fine quicklime or sawdust, for use in foul surfaces and heaps.

"To disinfect discharges from cholera patients, privies, water-closets, garbage tubs, and foul heaps or surfaces, use the strongest of the coal-tar or carbolic powders, which are powerfully antiseptic. Those that contain a large amount of some proto-salt of iron and the most carbolic acid are best. For disinfecting cholera, always use one of the soluble salts of iron or zinc, as mentioned in this memorandum, whatever else is employed.

"*Never use chlorine, chlorides, or the permanganate of potash with carbolic acid disinfectants.*

"Let closets and bed rooms be cleansed, dried and ventilated. Beds and bedding must be frequently ventilated in the sun.

"Whatever soiled clothing can be boiled should, if possible, as soon as removed be thrown into boiling water, and be kept boiling an hour or two. While waiting the boiling, keep all the cholera-soiled clothing covered in the disinfecting permanganate water, or, if that is not at hand, use the chlorinated solution. Whatever articles have received the infective matter of cholera, and cannot be immediately disinfected by such means or by sulphurous fumigation, should be destroyed by fire.

"Let it not be forgotten, that all the discharges from the bowels and the stomach of the cholera sick must be immediately disinfected, by the means specified for the purpose.

"Never cast the discharges from the sick into a privy or upon the surface of the ground, but into some privy or water-closet that is not for the time being frequented, or into a specially prepared little pit. And whether cast into a privy, or earth-pit, or elsewhere, the choleraic discharges, at every stage of the disease, from the first diarrhœa to the final collapse, must be disinfected as soon as voided, and be impregnated with destructive chemicals when cast away.

"*Fumigation of Infected Houses.*—In any room, house or ship, where the infection of cholera exists or is liable to exist, after cleansing, fumigation should be practiced with sulphurous acid gas, by burning a few ounces of sulphur upon a dish of red-hot embers, or with nitrous acid fumes, by pouring three ounces of concentrated nitric acid over an ounce of fine copper shavings, or by heating a mixture of nitrate of potassa and sulphuric acid in an iron or porcelain dish; or with chlorine gas (of little use in

cholera), by mixing a quart of muriatic acid and a pint of water, and pouring it upon a pound of finely powdered black oxide of manganese, or by any other method of evolving this gas. Sulphurous acid gas is the most effectual and the most easily applied of all the agents of fumigation. Before fumigation begins, let all chimneys and windows be closed; as soon as begun, let the person on duty withdraw from the place, close all the doors, and keep them closed for twelve hours, then open every window, door and aperture, and keep open for successive days and nights.

"There is no substitute for cleanliness and ventilation. To protect from cholera, attend to these sanitary duties, and also destroy by chemical agents the choleraic discharges."

"*Quantity and Kind of Disinfectants which are Required for Common Use.*—Recent reports from Professors Pettenkofer and Wunderlich, from Dr. Muhling, of Constantinople, and the especially excellent ones by Dr. Angus Smith, Mr. Crookes, and Professor Rolliston, as well as our own experience, fully confirm the confidence we have placed in the crude sulphate of iron and carbolic acid, for use upon the surfaces or in the vessels that receive the cholera excrement. There are many other chemical agents that can control or destroy the infective property of the excremental matters, but these are the most available, because at the same time the *cheapest and most effectual.*

"Let it be borne in mind by all sanitary authorities, that the object of all methods of cholera disinfection is, to *destroy or to hold in perpetual inactivity the excreta of the sick and the sources of organic putridity*, whenever the excrement may be cast away. The saturated solutions of sulphate of iron and carbolic acid, when employed jointly or in the order here mentioned, must certainly accomplish such disinfection when properly applied. They are our best and cheapest antiseptics.

"Boiling and high steam heat will most speedily and effectually disinfect foul clothing. The Floating Hospital has testified to this fact these eight years past. But all kinds of clothing and surfaces soiled by the cholera fluids require antiseptic care until they are washed. In the English towns, carbolic acid is employed for this purpose, although it is apt to destroy the fabrics, as it is but sparingly soluble (about one per cent. only, in water).

"The permanganate of potash is, both theoretically and prac-

tically, the best and most economical, for it does not impair the fabrics it touches if properly diluted, while at the same time it gives a color-test of its effective presence.

"Chloride of lime and chlorinated soda solutions will unquestionably hold the cholera poison in check for a time, but we have seen very decided proofs that their disinfecting power is transient and unreliable."—*Annual Report of the Metropolitan Board of Health*, 1866.

The objects of the preceding directions, as proposed by Dr. Elisha Harris, and other American and European sanitarians, were—

1st. To destroy or to neutralize the offensive gases and products of putrefaction.

2d. To prevent fermentation and putrefaction.

3d. To destroy all infection and infective processes in the specific contagions and infections.

It was not until the results of the more exactly defined experiences and researches in the epidemics of 1854, 1859 and 1865, in Europe, had been logically analyzed and compared, that the conclusion was reached:—*That the diarrhœal excreta of the sick, when impregnating the soil, the drinking-water, or any kind of decomposing matter, especially that of privies, cess-pools, sewers, drains, and the ground about dwelling-houses, constitute the positive, the chief, and, for aught that is yet known, the only means of propagating and spreading Asiatic Cholera.* This proposition being granted, the conclusion is reached:—That the cholera germs or infection, by whatever means they chance to be introduced into any town or city, will be *epidemically propagated* only where and when certain conditions of putrescence in the earth, the atmosphere, or the portable water are present; that when any two or more of these unhealthful circumstances are present, the certainty and severity of the epidemic will be greatly increased, unless the disinfecting power of acid antiseptics is brought to bear at every point of infectious exposure; and finally, the coëxistence and coöperation of surface moisture of the ground, technically, in the words of Pettenkofer, the ground water, is the most constant and essential of all the physical agencies that promote the propagation of cholera, after the germs of infection have been introduced.

The view has long been held that the cause of cholera and zymotic diseases was in some way dependent upon cell-germs and cell-growth, more or less like certain ferments; and ever

since 1838, the best microscopical students, particularly those who were familiar with the minutest forms of vegetable and animal parasites; have sought for the existence of some minute kind of cryptogamic cell-growth, or fungus parasite, that might be found exclusively in the rice water excrement of the cholera sick. During the year 1866, several of the ablest microscopists in Europe, independently of each other, reached the same results, which may be thus expressed:

In the rice water excrements of cholera-sick persons, and within the intestinal canal of such persons—also in the water and soil that have been in any manner made to receive or imimbibe the rice water excrements—is discovered a peculiar cell-growth or fungus cist, that in most respects resembles in its developed state the fungus Penicillium and the Oidium, that are so well known in connection with certain blighting diseases of cereals, as well as with the diphtheritic and other diseases of the human body. This new and peculiar species of fungus cell, called by Profs. Thomé and Klobe, cylindro-tænium, or *zoo gleea*, and considered by Profs. Hallier and Simon as an *exotic* member of the family to which the *urocystic* and oidium blights of cereal grain belong, is distinguished for its rapidity of development, strange forms of growth, and its fatal destruction of the epithelial tissue of the intestine. Professor Hallier has proved that from the Penicillium stage of development of the cholera-fungus, it would grow luxuriantly in the rice plant which is a native of India.

(To be continued.)

OCCLUSION AND DILATATION OF LYMPH CHANNELS.

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Continued from October No.

CHAPTER II—continued.

It is maintained* that ligation of the thoracic duct abolishes all other forces which aid in the production of the lymphatic circulation, and that the consequent rupture of the receptaculum chyli proves the constancy and predominant power of the

* Flint, loc. cit., vol. ii., p. 540.

endosmotic action. Ligation certainly cannot abolish the forces derived from muscular action, contractility of the vascular walls and from respiration. If it did, would it not prove that rupture occurred in consequence of the non-operation of these forces, rather than that the endosmotic was the predominant force? Rupture occurs at the receptaculum because it is the weakest point, and not necessarily because the pressure is greatest at that part. In Morton's* case of "Hydrops Ascites Lactea," in which the thoracic duct was occluded by the pressure of indurated tumors, the rupture took place in some of the "lacteal veins." He performed a number of experiments upon dogs by ligating the thoracic duct; in some instances "the receptaculum and in others the larger lacteals burst," and in every case chyle†

* Donald Monro, Essay on Dropsy and its Different Species, pp. 22, 23. 1795.

† Which was found in "firm, fat-like masses, melting into a watery fluid when handled in the open air."

Synopsis of Sir Astley Cooper's experiments: Med. Records and Researches, p. 104 et. seq.—

Experiment 1st. June 29th, 1795, "Tied extremity of thoracic duct. It was distended before ligation. 30th—Dog appeared lively and lapped milk heartily, but almost immediately afterwards became dull, and showed no inclination to move. July 1st, 9 a. m.—The animal was unable to move, refused food, and seemed to be dying. 11 a. m.—He died 48 hours after ligation. Dissection—Abdominal viscera obscured with chyle; "small quantity in peritoneal cavity." Lacteals empty. Receptaculum ruptured. Thoracic duct distended in thoracic cavity to double its size. Absorbents of stomach and concave surface of liver, of hinder extremities, and organs of generation were distended, but not so much as those of left fore leg and left side of neck; one of the latter was larger than a crow's quill.

Experiment 2d. July 2d.—First divided, then tied the thoracic duct of a dog. Animal refused food all that day. 3d.—Could not be made to eat; seemed dull, and very unwilling to move. 4th.—Lapped a great deal of milk, 5th.—Refused food, and appeared extremely weak. 6th.—Died during night. Dissection.—Large quantity of extravasated chyle and lymph. Receptaculum ruptured; thoracic duct distended.

Experiment 3d. July 15th.—Divided duct, but did not apply ligature. 16th.—Animal lively and takes food. 17th.—Is less lively, will eat but little. 18th.—Seems very weak and refuses food. 19th.—Found dead. Dissection.—Under wound of skin of neck, a pouch containing a considerable quantity of chyle.

Experiment 4th. Tied duct as in case 3. Dog for several days duller, and less inclined to eat than before, yet he gradually recovered. Upon inspection, found a vessel given off from below ligature and connecting with the right thoracic duct. These experiments were repeated, with like results. Cooper says; "Not necessary to tie duct; if animal is fed with milk, and the extremity of duct is compressed h .lf an hour afterwards the receptaculum will rupture. Those fed

was extravasated. In Stewart's case (No. 55), in which the discharge of chyle from the thoracic duct was interrupted, distension of the lacteals ensued. In Rokitansky's case (37), in which a similar obstacle existed, dilatation of the thoracic duct and chyle vessels followed. In the cases in which a chylous fluid was extravasated into the peritoneal cavity, rupture of the lacteals occurred; in Poncy's case (28), in consequence of impenetrable mesenteric glands; in Hughes' case (27), because of the degeneration of mesenteric glands and the pressure of a tumor. In Morton's case (26), it was occasioned by the compression of the thoracic duct near its outlet; in Perceval's case (25), by violence; and in Quincke's (43), by inflammatory thickening of both folds of the mesentery. In Cayley's, the mouth of the thoracic duct was narrowed by a fibrinous vegetation in the subclavian vein, and rupture of the receptaculum followed the sudden blocking up of the opening of the duct by a clot. In Ormerod's case (40), in which the chylous fluid found exit into the peritoneal cavity through ruptured lacteals, the left subclavian vein and its affluent vessels were plugged with a clot. Virchow* saw "in a new-born calf, the mouth of the thoracic duct closed by a congenital thrombosis of the jugular vein; in this case nearly all the organs were distended to the utmost by dilated lymph vessels; the intestines especially were covered everywhere so thickly by broad bead-like bands, that the interstitial tissue could hardly be recognized." In Sir Astley Cooper's experiments, when rupture occurred it always took place at the receptaculum; and Dupuytren's experiments upon horses were followed by nearly similar results.† These observations and experiments prove that under certain conditions, involving an interruption or arrest of the current of the fluid through the thoracic duct, distension and dilatation may become sufficient to

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just previous to ligation or occlusion of duct, died sooner than those with empty stomach. Young dogs lived longer than the old, and lean dogs much longer than the fat. None survived the 10th day, and none died under 48 hours."

* Virchow, Archiv., vol. vii., p. 130.

† Flandrin performed a number of experiments, but failed to establish the existence or non-existence of anastomosing branches communicating with the veins.—Flint, loc. cit., p. 449; Journal de Medicine, Chirurgie, Pharmacie, etc., Paris, 1791, t. lxxxvii., p. 226.

Du Verney applied the ligature to the "subclavian vein above the thoracic canal, and to the jugular above its insertion."—Flint, loc cit., p. 449; Histoire de l'Academie des Sciences de Paris, 1675, t. i., p. 197.

produce rupture, which may take place either in the receptaculum or in the lacteals, but they fall far short of demonstrating that occlusion of the duct abolishes the forces, other than the endosmotic action concerned in the movement of the lymph, nor do they establish the predominance of the vis a tergo forces.

In the tendency of the fluids to flow towards the thorax during inspiration, in the propulsion derived from the contractility of the vascular walls, from pressure from muscular action and compression of neighboring parts,* and interrupted cardiac circulation, an explanation must be sought for the dilatation of, and accumulation of fluid in, the thoracic duct and sub-pleural lymphatics in Rokitansky's case, of the enormous and extensive distension of the lymphatics of the viscera in the new-born calf, which must have had its beginning prior to the commencement of (and was, perhaps, entirely independent of) any absorption through the lacteals; and of the distension of "the absorbent vessels" (in Cooper's first experiment) of the hinder extremities and organs of generation; but not in an equal degree with those of the left fore leg and left side of the neck, "into which, as into the sub pleural lymphatics and those of the abdominal viscera, the accumulated fluid in the occluded thoracic duct could not have entered so long as the integrity of their valves was preserved. If, then, the fluid which may accumulate in branches communicating with the occluded central trunk be not derived from regurgitation, in which event it would be chylous, it must follow that the forces concerned in the production of the movement of the fluid in such subdivisions operate continuously and uninterruptedly, notwithstanding the occlusion; and inasmuch as the thoracic duct is constantly receiving the fluid from anastomosing branches, communicating freely with every intervalvular section, dilatation, distension, and even rupture may ensue. The normal current of the lymph through the numerous connecting branches, propelled onward by the continuous operation of the forces derived from respiration, contractility of the vascular walls, and compression of the surrounding and contiguous parts, will only cease when the repletion of the occluded

* J. Wilkinson King remarks that "the structure and arrangement of the tubes, their small size, their innumerable valves, the rapid narrowing of the aggregate passages towards the heart, and the extremely attenuated and yielding nature of their coats, all seem to render the onward current subject to every neighboring movement."– Guy's Hospital Reports, 1840, p. 97.

trunk has reached the extent which the utmost expansion of its calibre will admit, or, if the propulsive forces are sufficient to overcome the tensibility of its walls, rupture must take place.

It cannot be doubted that the movement of the fluid in the thoracic duct is affected by the activity of absorption taking place through the lacteals, but the more important and interesting questions are: first, the relation which this force bears to occlusion of the thoracic duct; and secondly, the relation which occlusion of the duct bears to the desire for and willingness to take food. The fact, that in all of Sir Astley Cooper's experiments the animals took food after the occlusion of the duct was effected, precludes the possibility of connecting, directly and uniformly, the loss of appetite with occlusion of the duct; but a careful analysis of these experiments brings to light a number of circumstances which favor the conclusion that the constancy and activity of absorption through the lacteals depend upon the continuous discharge of the chyle, either through the duct into the subclavian vein, or through some ruptured orifice. In the 1st and 2d experiments, the appetite of the animals ceased simultaneously with the application of the ligature, but returned, in the 1st on the second day, and in the 2d on the third day. In the third experiment, the animal continued to take food until the fourth day; in this case the chyle was discharged from the severed but unligated duct into a pouch beneath the skin, and the willingness to take food diminished from day to day *pari passu* with increasing obstruction to the flow of the chyle, caused by the increasing repletion of the pouch into which it was discharged; and in the fourth experiment, the only instance of recovery of the animal, the inclination to take food, slight immediately after the operation, gradually increased, from day to day, *pari passu* with recovery and the gradual restoration of the channel of communication of the lymphatic with the venous system, through the gradual dilatation of an anastomosing connection. These circumstances indicate a dependence of the desire for, or willingness to take, food upon the continuous and free discharge of the contents of the chyliferous vessels. The animals in experiments 1, 2 and 3 died, and in each case death was preceded by complete anorexia and great exhaustion; in 1 and 2 rupture of the receptaculum took place, and a large quantity of chyle (chyle and lymph in the 2d) was extravasated. The special post mortem condition—the ruptured receptaculum and

the peculiar circumstances—the complete suspension and subsequent return of the appetite, which distinctly differentiates cases 1 and 2 from 3 and 4, are significant facts, for which some explanation, not inconsistent with the essential phenomena presented by the entire series of experiments, must be sought. The very intimate relation subsisting between the partial or complete arrest of the onward movement of the chyle through the thoracic duct and the partial or complete anorexia, has been already made manifest by the previous narration of the circumstances following each operation. Anorexia, either partial or complete, associated with marked debility, increasing and succeeded by death in three cases, was the predominant manifestation in all the experiments; and yet, in the only cases in which the flow of the chyle through the thoracic duct was immediately and permanently arrested, and in which cases, also, rupture took place, it suddenly ceased and eager hunger followed. The inference, then, seems plain, that the rupture of the receptaculum and the return of the appetite were directly associated as cause and effect; and, consequently, the engorgement of the lacteals, growing out of the occlusion of the channel through which the chyle found an outlet, was relieved, absorption through the lacteals was restored, and hunger ensued. The chylous character of the extravasated fluid establishes the nature of the contents of the vessels ruptured, which fact, taken in connection with the additional observations, the excessive distension of the thoracic duct, the empty condition and occasional rupture of the lacteals, suggest the conclusions: 1st, that the course of the discharged fluid was from the digestive tract through the lacteals; and 2d, that absorption took place subsequent to the rupture. The conclusions are corroborated by the varying quantities of chyle found infiltrating the cellular tissues. If the stomach of the animal was empty at the time of the experiment, but very little fluid was extravasated; if distended with food, the cellular tissue was found loaded with chyle. For, as the rupture resulted from excessive repletion and distension of the ruptured vessel, it must follow, in view of the fact that the thoracic duct was always found in a state of repletion, that the fluid discharged would not exceed in quantity the amount contained in the receptaculum chyli and in the lacteals at the time of rupture, which could never be very large, and, in animals of the same species, could not vary much in quantity, whether the experiment was per-

formed previous to or after a full meal, and the excess of fluid discharged over the quantity contained in the vessels at the time of rupture could only be derived through the digestion of the contents of the alimentary tract and the absorption of the product through the lacteals.

Lower concluded from his series of experiments, undertaken for the purpose of proving that the veins did not take up the chyle, that every wound of the thoracic duct must be followed by death from starvation; but Rudolphi, who caused Lower's experiments to be repeated by Spinola, dissented from this conclusion, and insisted that "wounds of the thoracic duct (Gjorgjewic) are fatal, not because no fresh chyle is sent to the blood, but they are absolutely fatal because the thoracic duct forbids any interference by art, and because in an existing external opening of the thoracic cavity and a sufficiently free efflux of the chyle discharged from the wound, death from starvation must occur sooner or later;" and because of the accumulation of the discharged chyle in the thoracic cavity, thereby impeding the movements of the lungs and heart, and producing inflammation of the organs within the chest. Unfortunately, these experiments failed to determine the question; for in two of the animals the duct was not opened, in one the wound was so slight that no fluid escaped, and in the fourth the duct was wounded, but little, if any, fluid escaped. At the locality of the wound the duct was completely occluded by a thrombus and adhesions. Below this point the duct was widely dilated, and filled with chyle, showing that absorption from the alimentary tract had taken place, and probably continued until the gradual obliteration of the channel was completed, for the "animal sickened from the beginning, wasted, finally refused food, and died on the tenth day after the operation."

There is no instance of the preservation of the life of an animal beyond a limited number of days, in which the communication of the lymphatic with the venous system had been completely and permanently obliterated. In seeking an intelligent explanation of the cause of death, the experimental and clinical observations must be considered. The wound necessary to secure the thoracic duct could not have caused the speedy death of the animals experimented upon, for in a number of cases it healed by the first intention; neither could death be attributed to the rupture, either of the thoracic duct, or of the lacteal vessels, or

of the receptaculum chyli, nor to the extravasation of chyle or lymph into the pleural or abdominal cavities, or into the cellular tissue about the abdominal viscera, for death took place in those cases in which neither of these sequences complicated the obliteration of the communication between the two systems, as it did in those in which one or more of these conditions supervened. In the animals upon which Dupuytren experimented, and which survived the ligation of the thoracic duct, injections could always be passed from the duct below the ligature into the subclavian vein, through anastomosing branches; in those that died no such connection could be established. But one of the animals, in which Flandrin ligated the duct, died, but he failed to determine the existence or non-existence of anastomosing connections. Du Verney's, Lower's, and Morton's experiments indicate the certainty of death after the ligation of the thoracic duct, unless the communication with the venous system should be preserved or reëstablished through anastomoses. Leuret and Laissaigne* tied the thoracic duct of a dog, which, under the antiphlogistic treatment, was restored, in 58 days, to a fair condition. The animal was killed during digestion, and upon dissection the duct was found single, and the lacteals and receptaculum contained a small quantity of chyle, but they neglected to eliminate the doubt in regard to the existence of another channel of communication by attempting injection. In Cooper's 4th experiment, in which the animal recovered, it was established by dissection that the incompletely interrupted communication had been restored by the dilatation of an anastomosing connection. Lower† ruptured the thoracic duct of a dog by introducing his finger between the ribs. The animal died after languishing a few days, and two pounds of chylous fluid were found in the right cavity of the thorax. Monro inflicted a wound on the receptaculum chyli of a pig, which was cured in a very short time, and in the meanwhile the effusion of the lymph was prevented by its coagulation. Bartolini‡ mentions a case where the thoracic duct was wounded, and the patient lived a long time—"longa fuit tabes." Goodlad refers to a case, quoted from Bohnius' Renunciation

* Recherches Physiologiques pour servir a l'Histoire de la Digestion, Paris, 1825, p. 180.

† Tractatus de Corde, etc., Edit. tertio, p. 207; also Goodlad, loc. cit., p. 47.

‡ Goodlad, loc. cit., p. 61.

Vulner, of a man who was wounded in the duct—"at least the mucus and liquid that came out of the wound made it appear so; the patient was nearly cured, but by an excess relapsed and died." With a single exception, the experimental and traumatic observations sustain the general proposition, that life cannot be preserved beyond a limited number of days when the communication between the lymphatic and venous systems is absolutely obliterated. The exceptional case (Leuret and Lassaigne's) must, in the absence of post mortem demonstration to the contrary, be interpreted by the light of Cooper's 4th experiment; and as in that it was shown that the preservation of life was due to the restoration of the communication, such result is the plausible inference in this case. This conclusion is corroborated by the statement that the animal was killed during digestion, and that but a very small quantity of chyle was found "in the lacteals and receptaculum"—an amount presumably commensurate with the carrying capacity of the communicating channels, and indicative of the slow progress of digestion and retarded absorption, in consequence of the partially, if not wholly, obliterated channel of inter-communication.

The clinical and post mortem observations of cases, in which the channel of communication between the venous and lymphatic systems was either partially obstructed or wholly obliterated, are not very numerous; and many of the reports are simple statements of bare facts, unaccompanied with the clinical histories of the cases, and are wanting in the particulars essential to the deduction of clear and decisive conclusions in regard to the agency of the, at least partially, obstructed condition of the lacteals and of the thoracic duct, in causing death. The grouping together, however, of these isolated observations is peculiarly instructive, not so much in pointing so directly, as the experimental observations, to the interruption of the communication as the immediate and only cause of the death, as in affirming and strengthening that view, and in elucidating the manner the inevitable result is produced.

Soemmerring* found, in several instances, the lacteals filled with a cheesy material, and Walter† found them similarly obstructed and associated with indurated mesenteric glands, in a

* De Morbis Vasorum Absorbentium Corporis Humani, p. 43.

† Memoire sur la Resorption, in Mem. de l'Acad. roy. des Sci. Berlin, 1787, p. 21.

man 30 years old. Sandifort* has depicted the lacteals enormously swelled, in an infant a few days old; and Ludwig† found them in a similar condition, associated with schirrous mesenteric glands, in a girl 7 years old. Assalini‡ found the thoracic duct obstructed by an earthy or osseous material, and Bayford§ observed the cavity of the thoracic duct narrowed by the pressure of an aneurism. Watson‖ found the duct obstructed in a case of incurable marasmus. Licutard found in the body of a patient who died of consumption, the thoracic duct three times its normal size and full of chalky material.¶ Bassius¶ found an orifice in the thoracic duct of a man from whose thorax "a large quantity of chylous liquor" had been evacuated. In Morton's¶ case the thoracic duct was occluded by the pressure of indurated tumors, and the lacteals were found ruptured. Cheston¶ found the thoracic duct entirely occluded with ossific matter from immediately above the receptaculum chyli up to the curvature of the aorta. Air could be forced between the walls of the receptaculum and the adventitious product within it, but Mr. Cruikshank failed to force mercury through the duct. This case was admitted to the hospital June 5th, 1779, complaining of rheumatic pains, soon followed by swelling of the right thigh, and died October 10th. Death was preceded by languor, loss of strength and insensibility. Cooper¶ found in a cadaver, which presented the appearance of a person having died of phthisis pulmonalis, the thoracic duct so obstructed at several points by diseased valves, that mercury could not be forced through the lumen; and in a second case,¶ in assisting Mr. Waterworth to make a preparation of the thoracic duct, failed to force the mercury any farther than the 5th dorsal vertebra, but discovered an anastomosing connection with the venous system. In the case of Jno. Hammett, who was admitted to the hospital in January, 1795, and died February 14th, 1795, Cooper found the receptaculum chyli and the thoracic duct filled with a pulpy mass, the latter being for some distance impervious. Mercury injected into an absorbent of the loins passed as far as the receptaculum

* Observationes Anatomico Pathologicæ, Lib. sec. Cap. oct., Tab. 8., Fig. 5.

† Epistolarum ad Hallerum Scriptarum, Vol. sec., p. 294.

‡ Essai Mèdicale, sur les Vaisseaux Lymphatiques, Turin, 1787, p. 52.

§ Medical Observations and Inquiries, Vol. iii., p. 18.

‖ Phil. Trans., Vol. 50, p. 392.

¶ These cases have been previously cited.

and then ran through several vessels behind the aorta, connecting with the duct proper above the obstruction. This patient, when admitted, was suffering from a diseased testicle and an abdominal tumor, which in two weeks were followed by a loss of former florid aspect, sudden debility, great thirst, loss of appetite, disordered bowels, and a sense of distension in the upper part of the abdomen after taking even a very small quantity of food. Scherb found the receptaculum filled with a calculus, and entire obliteration of a portion of the thoracic duct, in a man who had died from dropsy. Through a foramen in the calculus the thinner portion of the chyle passed, and life was preserved for a time. Graves and Stokes found the thoracic duct greatly enlarged and filled with cheesy and calcareous materials, in a patient who died of psoas abscess, which communicated through the lymphatic vessels with lymphatic glands and with the thoracic duct. The patient died suddenly the day after having been bled to ten ounces; was not emaciated, and had not suffered from hectic. Chyle flowed through the duct, but mingled with the purulent contents. Andral found the thoracic canal obliterated in the body of a phthisical patient, but the chyle flowed through a small anastomosing branch. The case of chylous ascites reported by Poucy is peculiarly instructive. From July 16th, 1699, to March 4th, 1700, the date of death, 289 French pints of fluid had been drawn in 22 tappings from the abdominal cavity. The evacuated fluid was always chylous, and frequently exhibited the unmistakable odor of articles of diet which had been previously ingested, thus conclusively demonstrating that digestion had taken place, and that the product of such digestion had poured into the peritoneal cavity through the ruptured lacteals; and that the progressive emaciation and waste exhibited in all the tissues and in every part of the body had resulted from the loss of this nutrient material through the ruptured orifices and its frequent evacuations through the abdominal walls. Quincke's case of effusion of chyle into the peritoneal cavity died of asthenia. And, lastly, the author well recollects having seen in the Pennsylvania Hospital, in the service of the late Prof. Wm. Pepper, a case in which the thoracic duct was occluded by the pressure of an aneurismal tumor. The patient wasted and died a starved skeleton.*

* I have searched in vain for a report of this very interesting case, but my recollection of its characteristic features is so vivid that I venture to record them.

Meagre and unsatisfactory as these clinical details are, they nevertheless point distinctly to two conclusions: 1st. That a free and unobstructed channel of communication between the venous and lymphatic systems is essential to the proper nutrition of the body and to the preservation of life. So manifest is this conclusion, deducible alike from the experimental, traumatic, clinical and post mortem observations, that it must henceforward be accepted as a fact. 2d. That death following the partial or complete obliteration of the communication is the result of inanition. The gradual wasting of the body and progressive debility, which so markedly characterized the clinical cases, in which the flow of chyle through the thoracic duct or through anastomosing connections was insufficient for the maintenance of the normal standard of nutrition, more decisively points to innutrition as the cause of death, than the sudden exhaustion which preceded the death supervening upon the abrupt arrest of the current of chyle and lymph towards the blood. Investigators are not agreed as to the cause of the speedy death which invariably follows artificial obliteration of the communication. Flint rejects the view that death in such cases can be caused by starvation, and maintains that the cause "is chiefly mechanical, and is due to distension, and sometimes rupture, of some of the vessels." That, in the experimental and traumatic cases, there may be a superadded element of violence, I will not deny, but that this element can find a satisfactory explanation in the consequent distension and occasional rupture of some of the chyliferous vessels, is controverted by those clinical observations in which life, associated with progressive wasting and increasing exhaustion, was preserved for a variable period notwithstanding there was a continuous loss of chyle through ruptured vessels; and, furthermore, by the fact, established beyond controversy by the experiments, that in every instance of artificial obliteration of the communication in which death occurred, no anastomosing connection could be recognized, and in every case in which life was preserved, where proper measures were adopted to eliminate all doubt, such anastomosing connections were discovered. But,

The man suffered from abdominal aneurism, paralysis of both lower extremities and great emaciation. Dr. Pepper attributed the paralysis to pressure of the tumor upon the spinal column, which had previously produced caries of several vertebræ, and the waste to occlusion of the thoracic duct from the pressure. This remarkable diagnosis was verified by the autopsy made by Dr. Jno. Neil.

in what does the violence consist? Not in traumatism. Such a consideration is excluded both by the experimental and clinical cases. One of the animals experimented upon by Cooper recovered, as did a number of others experimented upon by Flandrin, Dupuytren, Lower, Morton, Spinola, and Leuret and Lassaigne. A dog, in which Lower ruptured the thoracic duct, languished a few days and died; and Bartholin's case of ruptured thoracic duct lived a long time. Poncy's patient, with ruptured lacteals, lived eight months; John Hammett lived a month, and the cases of Scherb, Morton and Bassius, sank from exhaustion and inanition. Percival's case of chylous ascites recovered.

If not traumatic, this element of violence must consist in the sudden interruption of the normal supply of chyle to the blood, the consequent abrupt cessation of the requisite supply of nutrient material, and deprivation of the blood of one of its essential corpuscular constituents—the lymph corpuscles—which are constantly being multiplied, replenished, and elaborated by the lymphatic glandular apparatus, and conveyed thence to the blood to subserve the purpose of the animal economy.

This interpretation of the phenomena is not mere conjecture. Clinical records furnish a number of cases which illustrate the direct relation, as cause and effect, which subsists between copious losses of lymph and chyle and the marked depression, dulness and exhaustion, which invariably succeed abundant lymphorrhagiæ; and which likewise abruptly follow artificial occlusion of the thoracic duct, and so distinctly characterize the brief after life of the animal thus permanently deprived of the material necessary for the sustenance of the body and for the maintenance of the functions of animal life. With a single exception (Demarquay's case), every instance of copious loss of lymph, whether through the rupture of a lymphatic vessel or by transudation, has been attended with the manifest evidences of great prostration.

The cases of experimental and permanent obliteration of the connection of the lymphatic and venous systems, and the cases in which excessive loss of lymph has occurred through rupture of some distended lymph vessel, though analogous in symptomatic phenomena, varying, it is true, in intensity according as the case may have been one of complete deprivation, or one of copious lymphorrhagia, differ very materially in termination. One class end in speedy death; the other, by rest, suspension of

the loss of fluid, and proper alimentation, soon recuperate wonted health and vigor, to suffer again, and perhaps, many recurrences similar in course, duration and effects. This widely variant result, which in one class of cases associates death directly with the complete and permanent deprivation of the blood of the nutrient fluid; and in the other class associates recovery with the opportunity to replenish loss, and thus to restore health and prolong life, fastens attention to the circumstance—that as the latter class are characterized by the unmistakable evidences of prostration, so death in the former class must be regarded as the ultimate termination of a similar condition passed beyond the resources of art and science.

The mode of death may not properly be by starvation, as implied in the ordinary acceptation of the word, but, assuredly, it is by exhaustion from want of nourishment—acute impoverishment of the blood—inanition, a pathological condition not representing a physiological waste, but a physiological want of material necessary for the regeneration of the blood, renewal of the tissues, and for the normal maintenance of the vital and physical forces.

Numerous experiments have been made upon inferior animals to determine the effects of progressive inanition, from which the following general conclusions have been deduced. Age exercises a marked* influence upon the power of resistance, death ensuing more quickly in the young than in the middle-aged; there is progressive waste; the blood deteriorates in quality and diminishes in quantity; the pulsations of the heart diminish in force and frequency and the respiration in frequency, except during the period of cerebral excitement; the amount of carbonic acid exhaled lessens; the breath becomes offensive; the temperature falls, with increase of daily variations; the secretion of urine diminishes, and the fæcal discharges, unless diarrhœa sets in, are very markedly lessened; insomnia ensues, and cerebral excitement and delirium mark the closing scene. Unfortunately no observations have been made upon the animals experimented upon by ligation of the thoracic duct, and none have been recorded in the clinical cases of either partial or total obliteration of the duct, which permit any comparison to be made between the effects in such cases and the recognized phenomena

* Cooper records the observation that young dogs experimented upon by him lived longer than the old, and the lean much longer than the fat.—Loc. cit., p. 111.

attending inanition from either partial or complete deprivation of food and fluid. In the absence of such opportunities to apply the test of analogy in effects, the identity of the cause of death cannot be positively established.

It is perhaps true, as suggested by Prof. Busch,* that hunger is the expression of two sensations—one local, the other general; the latter "resulting from the want of material to repair waste of tisue." It is impossible to distinctly separate these two sensations, or to definitely trace their mutual relationship. The general sensation cannot exist independently of the local, though the latter, as the expression of a desire for or willingness to take food, perhaps more acceptably expressed as the appetite, does not necessarily indicate a want of the system for nutritive material; for it may not only exist independently of any such demand, but may force upon the digestive organs an excess of aliment, and into the system a redundancy of nutriment, and is so dependent upon and capriciously associated with individual habit, cultivation, functional and pathological conditions, ot the stomach, modifying influences of the nervous system, nature of the substances ingested, and the various conditions and multifarious circumstances incidental to the mutations of life, that in itself it neither correctly expresses, nor, in the fulness of its gratification, correctly measures physiological want. As the precursory manifestation of the general sensation of hunger, the appetite is an essential part of that keen and intensified expression of want which denotes decay, waste, and need of material for self-regeneration. And yet anorexia, even to loathing, is so frequently associated with pathological conditions involving extraordinary consumption of material and rapid destruction of tissue

* See observations on digestion, made on a case of fistulous opening into the small intestine. The fistula, resulting from the gore of a bull, existed in the upper third of the small intestine, the upper and lower ends being represented by two openings communicating externally, but not with each other. Everything taken into the stomach passed out through the upper opening. "The patient was allowed to eat as much as she wished, but this was not sufficient food." She became extremely emaciated and weak. Then food was thrown into the lower opening, and her general health improved. At first her "appetite was voracious; she never felt satisfied." Continued to eat, even when the first portions of food which she had taken were escaping through the opening. She would then say that she felt better but was still hungry.—Amer. Jour. Med. Sci., Vol. xl., p. 217. Also Beitrag zur Phy iologie der Verdanangsorgane, Virchow Archiv., 1858.

elements, that it must be admitted that, not unfrequently, the system fails to announce want through any sensation of hunger. These opposite relations of the sensations of hunger to destructive assimilation are admirably exemplified in the allied affections, gastro-cutaneous and gastro-colic fistula. Gastro-cutaneous fistulæ* are, as a rule, associated with invigorated appetite; a portion of the partially digested food escapes externally through the fistulous orifice; another portion, perhaps inadequate to replenish physiological waste and decay, passes into the smaller intestine, and the ultimate product of completed digestion is absorbed. The appetite, as the expression of the want of the system, demands an additional supply of aliment. In gastro-colic fistulæ† a portion of the chyme passes directly from the stomach into the colon, and only such portions as may enter the smaller intestine through the pyloric orifice are assimilated; yet the appetite languishes, and finally fails entirely, notwithstanding the progressive emaciation. This important difference in the symptoms of the two varieties of fistulæ is probably attributable to their essentially distinct natures. Gastro-cutaneous fistulæ find, as a rule, their cause in simple non-malignant ulcer;‡ gastro-colic fistulæ are, in two thirds of the cases,§ the eventual issue of carcinomatous degeneration of the stomach, coëxisting, usually, with secondary and multiple deposits, with more or less involvement of the lymphatic system—more especially of the mesenteric glands—with deterioration of the lymph, through absorption of noxious material and consecutive impediment to the flow of the fluid through the lymph vessels; or with the rarer complication of occlusion of the thoracic duct, occasioned by the pressure of some visceral tumor, or of enlarged and indurated lymphatic glands. In view, however, of the fact that one-third of the cases of gastro-cutaneous fistulæ are associated with, and about the same proportion of cases of gastro-colic fistulæ are unconnected

* Murchison says, "the principal abnormal symptoms dependent upon gastro-cutaneous fistulæ are, great thirst, increased appetite, obstinate constipation, deficient secretion of urine, and amenorrhœa." See collections of 25 cases, Med. Chir. Trans., Vol. xli., p. 45, 1858.

† Murchison's collection of 33 cases, Edinburgh Med. Jour., vol. iii., pp. 21, 121; 1857.

‡ Two-thirds of the cases of gastro-cutaneous fistulæ result from simple ulcer, one-third from cancer.—Murchison, loc. cit.

§ Of 33 cases, 21 were cancerous, 9 or 10 only from simple ulcers.—Murchison, loc. cit.

with, any manifest localization of cancer, this explanation would necessarily be inconclusive, but that the clinical details, though incomplete in some essential particulars, establish (see note) the direct connection between anorexia, emaciation, and a very brief average duration of life, with the cancerous nature of both varieties of fistulæ; and similarly connect invigorated appetite, general good health, and a very considerable increase of the average duration of life with the benign character of the affections.

(*To be continued.*)

INJURIES OF THE HEAD.

BY SAMUEL LOGAN, M.D.

(Read before the N. O. Medical and Surgical Association, June, 1877.)

Continued from October No.

No. II.
Fractures of the Cranium.

Here, as elsewhere, we may for convenience classify fractures as *simple* and *compound*, *complete* and *incomplete*, *fissured*, comminuted, etc., bearing in mind, however, that any given fracture may possess the characteristics of more than one class. Thus we may have a simple complete, or a simple incomplete fracture; a simple fissured, or simple comminuted fracture; a compound complete or incomplete fracture; a compound fissured or comminuted fracture, etc.

But there is one particular system of classification—having

NOTE.—Of 33 cases of gastro-colic fistulæ, 21 were cancerous, 10 benign, 1 tuberculous, and 1 scrofulous. Of the 21 cancerous, 12 emaciated rapidly, no statement in regard to 8, and 1 lived some time on beer. In 11 cases duration of life was accurately observed, 7 of which were cancerous and 4 benign. Average duration of life of cancerous was 6 weeks, of the benign cases 9 months.—Murchison, loc. cit.

Of 25 cases of gastro-cutaneous fistula, 6 were cancerous, 12 from simple ulcer, and 7 mechanical. The average duration of life of the 6 cancerous cases was 22 days; of the 12 cases from simple ulcer 3 were cured, 1 died in 26 days of phthisis, 1 lived many years, and 6 lived an average of 10 years and 5 months. Of 7 mechanical cases, 1 lived many years, 1 was cured, 3 were alive at date of report, and 5 (including the 3 alive) lived an average of 13½ years. Two cases living at date of report had had fistula, one for 35 years, the other for 27 years, and both enjoyed good health.—Ibid.

reference to the character of the displacement—which is of such special importance in fractures of the cranium as to demand particular attention. I allude to the universally adopted division of such cases into *fractures with depression* and *fractures without depression.* Then again we speak of bridged fractures, of stellated fractures, of punctured fractures, and of gun-shot fractures—terms which explain themselves.

It will not be necessary to consider each of these varieties or classes in detail. The important point for us to bear in mind in considering any given case is, how far these peculiarities, as expressed in these various terms, tend to indicate danger to the encephalon.

All fractures of the cranial bones are dangerous; some, however, more so than others, as we will see.

1st. *Simple fractures—i. e.*, fractures where the bone is not exposed by a wound in the soft parts—are more or less important in accordance with their extent, location, and amount of depression. If a simple fracture be not very extensive, involve no important blood-vessels, be not accompanied with symptoms indicative of serious brain complication, and be located on the vault of the cranium, it is to be considered less serious than one presenting any one or more of these features.

If the fracture be located at the base of the skull, even if only a slight fissure, it usually results fatally.

Compound fractures of the skull present some of the most serious cases we have to deal with, especially if, besides the wound of the soft parts, there be much comminution or depression. The mere fact of there being a wound of the soft parts does not, however, materially enhance the danger.

2d. *Complete and incomplete fractures* depend for their importance also on existing complications, more than on the mere fact of completeness or incompleteness. Of the incomplete class we have two varieties, fracture of the outer table alone, and fracture of the inner table alone. The latter is quite rare; the former not very uncommon. Each of these varieties may be accompanied by depression, which feature is of serious import, however, only in those cases of incomplete fracture in which the inner table is involved.

3d. Fissured and comminuted fractures need no special description. They present an endless variety; indeed, the comminuted fractures are seldom, if ever, precisely the same. Their

importance depends on their position and complications. As these complications refer mostly to the encephalon, they will be considered further on when we discuss injuries of the brain. But there is one class of fissured fracture—which may also in some cases be comminuted—so located as to demand special attention. I allude to

FRACTURES OF THE BASE OF THE SKULL.

The slightest fissure here located is of the greatest importance. This is due to the anatomical features of such cases. In the first place, so many venous sinuses and large arteries are there located in close juxtaposition with the bones, that a fissure can run but a very little distance without involving some of them; and in the second place, the nerves on which the functions, among others, of respiration and cardiac action chiefly depend, take their origin from the ganglionic centres at the base of the brain, and pass out of its cavity at its lower part. Either at the time of receipt of the injury, or in the subsequent processes of extravasation, effusion, inflammation, etc., these vitally important nerves are too apt to become involved at their origin, or in their intra cranial course. I have seen but one case of recovery after undoubted fracture of the base of the skull, but a few other cases have been reported.

GUN-SHOT FRACTURE OF THE CRANIUM.

There are a few peculiarities in fractures produced by firearms which may be concisely mentioned.

There is no difference in the general pathological principles involved, and they present the same varieties as to degree of injury, complications, etc. They are apt, however, to be more serious. It is more in the cases of penetrating gun-shot wounds that any marked peculiarities present themselves. If a bullet passes through the whole thickness of the cranial walls, it presents the features combined in one of a punctured and comminuted compound fracture. The outer table presents a larger orifice than the inner table in such a case; but if the ball passes through and escapes from the skull, the second fracture presents exactly the reverse phenomena: in it the wound through the inner table is the smaller, and smaller than that of the inner table at the point of entrance.

It seems strange to me that these universally admitted facts have not long since sufficed to explode all the theories hitherto advanced in explanation of the difference in size between the orifice of entrance and that of exit in gun-shot wounds in general. The explanation usually adopted is, that the momentum of the ball is diminished by the resistance of the tissues, and when it reaches the surface of exit, its velocity being somewhat impeded, the parts thus situated have time to yield in front of the missile, and thus, presenting a larger surface for contact, are torn to a greater extent. The phenomena in the case of a gun shot wound passing entirely through the skull are in direct contradiction to this theory; for if the diminished momentum were the chief cause, the ball, as it penetrates the inner table of the bone at the point of exit, should make a larger wound than when it passed through the inner table at the wound of entrance, for it has lost some momentum in passing through the brain. This, then, cannot be the full explanation, though there is no doubt but that some of the difference is due to this cause. Mr. Teevan's explanation is to my mind equally insufficient. He argues that the greater size of the orifice of exit in gun-shot wounds is mainly due to the fact, that the ball carries before it portions of the tissues and foreign bodies, and is thus practically increased in size as it goes, and consequently makes a larger orifice of exit. Possibly something may be due to this agency in some cases; but why, then, in wounds of the head passing through, is the inner table at the orifice of entrance more extensively fractured than that of the inner table at the orifice of exit? To my mind it is almost exclusively a question of relative support. The tissues beneath the surface of entrance afford a certain degree of support which tends to prevent their yielding. They are, therefore, more or less cleanly cut. But at the surface of exit the comparatively little support afforded by the air permits more yielding, and therefore a larger rent is made. Apply this reasoning to the case of a gun-shot wound passing through the head, and all the phenomena are at once explained. The outer table at the point of entrance is supported by the diploe and the inner table, while the latter is only supported by the soft membranes and brain; and the wound through the latter is therefore larger. The inner table at the point of exit is supported by the diploe and the outer table, and therefore, the hole through it is not only smaller than that through the outer table at the exit, but

smaller than that through the inner table at the point of entrance. I have held and taught these views in regard to this oft-mooted question since 1860, at which time I demonstrated its truth on the dead subject. I fired pistol balls through the limbs with the latter braced against a piece of soft wood, and invariably the orifice of exit was the smaller, for the support of the wood to the surface of exit was greater than the support of the tissues to the surface of entrance, notwithstanding the loss of momentum, and according to Teevan's theory, the possible accumulation of material, like a rolling snowball, by the missile. I claim for my simple theory that it not only explains the phenomena of gun-shot orifices in skull wounds, but also the not infrequent and otherwise puzzling exceptions, where in other portions of the body we find the orifice of exit smaller than that of entrance. Some chance support is probably present in all such instances.

I saw several cases during the war in which, the patient being on horseback, the ball traversed the thigh where it rested firmly against the saddle, this fact explaining the comparatively small orifice of exit.

The importance of this discussion becomes apparent when we consider its medico-legal bearings. We can only testify that, as a rule, the orifice of entrance is smaller and less torn than that of exit; and it seems to me that the exceptions to the rule might be fully and satisfactorily explained on the principle I advocate, even to an ordinary jury.

SYMPTOMS OF FRACTURES OF THE SKULL.

These, of course, vary with the location and nature of the fracture.

A simple fracture of the vault of the cranium often presents no signs whatever which can be detected through the soft parts; and even if it be compound, and there be only a simple fissure of the bone, it is often a difficult matter to detect it. We must be careful not to mistake a suture for a fracture. The probe may sometimes help us in the examination by slipping into the fissure; or if this fail, the point of a tooth-pick, or the flat extremity of the probe may be employed—always using the utmost delicacy, and not pursuing the investigation too long, or permitting others to do so.

If there be no brain symptoms present, no special good is to be derived from an absolutely indisputable diagnosis; for the

patient in all suspected cases should be treated just as if fracture were present. Again: the divided periosteum may leave a cleft which might be mistaken for a fracture. A careful examination will soon correct the impression by showing that the soft parts only are involved. The mistake will hardly be made, if the examiner bears in mind the possibility of committing this error.

A simple complete fracture with depression may sometimes be mistaken for incomplete fracture with indentation of the outer table. The absence of any brain symptoms may permit a probable diagnosis of the latter condition, especially if the injury be located where the tables are more widely apart; as, for example, over the frontal sinuses. But we have no means, in some cases, of being certain that the depression involves only the outer table. Here, again, an absolutely accurate diagnosis is not material, as it would not modify the treatment in any essential particular; for it cannot be repeated too often, that all injuries of the bones of the cranium should be treated as serious till time develops their harmlessness.

I have already alluded, when on the subject of contusions of the scalp, to the possibility of mistaking the soft centre of a mass of extravasation with its hard rim for a fracture with depression, and I explained the method by which the discrimination between the two conditions may be readily effected. In cases of compound depressed, or compound comminuted fracture, the finger readily detects the condition and estimates its extent and degree.

Fractures at the base of the skull are to be diagnosed only by symptoms referrable to their complications, as, of course, the part is inaccessible to direct examination, with the exception perhaps of the body of the sphenoid with the basilar process of the occipital bone, and the inner portion of the roof of the external auditory meatus, in which Prof. Roser, of Marburg (Von Langenbeck's Archiv. für Klinische Chirurg., Bd. xv., Heft 3), once detected a fracture of this portion of the base of the skull by means of the aural speculum, the tympanic membrane being found intact. The body of the sphenoid and the basilar process of the occipital bone may be reached by the finger through the mouth; and I have endeavored to detect fractures from this direction, but cannot say that I have succeeded in doing so with certainty, though I see no reason why in some cases it may not be practicable. So far as I have noticed, this mode of examination

seems to have been overlooked, and I take this opportunity of suggesting it to practical surgeons.

Three classes of symptoms, referrable to three kinds of complications, present themselves for consideration. One refers to injuries of the blood-vessels, another to injuries of the nerves, and the third to the escape of cerebro spinal fluid from injuries to the membranes.

The hemorrhage from fractures at the base of the skull may present itself in various places. There may be persistent bleeding from the nose, and this would indicate—though, of course, not with absolute certainty—that the fracture involved the cribriform plate of the ethmoid, the wall of the frontal sinus, or the body of the sphenoid. In the latter case, the blood is more apt to drop into the posterior nares. It may be swallowed, and then, if vomited, may lead to a mistake as to its origin. The blood may in other cases present itself in the form of a subconjunctival ecchymosis, especially on the lower half of the ball of the eye, having reached that location from behind—indicating involvement of one of the bones constituting the boundaries of the orbit. An ecchymosis of this kind, unaccompanied by evidence of direct injury to the external parts around the orbit, is often very important in the diagnosis. In some cases the ophthalmic artery may be torn or injured, and an orbital aneurism be the result. Cures in two such cases by ligation of the carotid are reported.

Again, we often have hemorrhage, not infrequently quite profuse, through the ear—indicating that the petrous portion of the temporal bone is fractured. Or perhaps, in some rare cases, the great lateral sinus may be involved where it grooves the inner surface of the mastoid process; and the blood passing into the mastoid cells may reach the middle ear from that direction, when it either bursts the tympanum and escapes externally, or drops into the pharynx through the Eustachian tube, as it may also do in the petrous fractures.

The hemorrhage may, again, in rare instances present itself in the form of extravasation in the zygomatic and temporal fossæ, or in the sub-occipital region behind the mastoid process.

It is not my intention to assert that these forms of hemorrhage in themselves positively prove the existence of fracture of the base of the skull. Any one of them may be found, and yet no fracture be present. It is only in conjunction with other symptoms that they become valuable aids to diagnosis.

The escape in decided quantity and continuously of a serous fluid through the external auditory meatus, is perhaps more significant of fracture of the base of the skull than any one other symptom; but even this is not an infallible test. Grailey Hewett reports two cases of such a discharge in profuse quantity, when there was only a ruptured tympanum. Prof. Roser suggests (loc. cit.), that in some cases where the meninges are torn and the inner surface of the bone merely exposed, the cerebro-spinal fluid may, by intra-cranial pressure, be forced through the bone canaliculi and into the auditory passages or chambers, just as in some cases of osteomyelitis the medullary fat is forced into the canaliculi of a long bone. In some cases this fluid escapes through the nose or fauces, and one or two cases are mentioned in which what was supposed to be the same fluid was found to escape through fractures of the vault of the cranium. The quantity of this fluid, which is sometimes discharged for days, would be surprising did we not remember the great vascularity of the surface secreting it, and the consequent promptness with which the supply can be kept up under the stimulation produced by the injury. On a smaller scale, an analogous phenomenon is presented in the first stage of severe coryza.

The third class of symptoms consists, as I have stated, of phenomena referrable to the nervous system. They are of very frequent occurrence, and present a variety corresponding to the nerves which are liable to be affected, either at their origin or in their course, ere they pass from the skull.

The first and second pair are perhaps less frequently affected than any of the others. In regard to the first pair, it may be that its paralysis is frequently overlooked, on account of the comparative unimportance of its function.

The marked immunity of these two pair is due more to the following peculiarities: first, their anatomical relations to the bone are less intimate than many of the other cranial nerves; secondly, they do not pass through canals—like the aqueduct of Fallopius, for example; and in the third place, they are located—the olfactory entirely, and the optic where it lies in nearest relation to the bone—on a higher plane than the others, and therefore are less liable to compression from extravasated blood or inflammatory effusion, etc., these tending to seek the lower line of the middle fossæ of the skull.

The third pair, the fourth pair, the ophthalmic division of the fifth, and the sixth pair—all located in the cavernous sinus in close juxtaposition with the bone, and at a part where fractures are, relatively speaking, quite frequent, and where venous hemorrhage readily occurs—are often paralyzed, either from actual injury, or from the pressure of escaped blood primarily, or inflammatory exudations subsequently.

The other two divisions of the fifth pair, and the seventh pair (or Portio Mollis) are sometimes paralyzed. The eighth pair (Portio Dura) or facial is more frequently affected than any other, and the fact that it passes through so long a canal in the bone is a sufficient explanation.

The 9th, 10th, 11th, and 12th pair are but seldom affected. Two anatomical peculiarities may be adduced to explain this immunity. First, the nerves pass out shortly after their origin through wide foramina, thus being less liable to injury or compression; and secondly, the base of the skull is seldom fractured in this neighborhood, on account of the great strength of the basilar process and the thick margin of the foramen magnum of the occipital bone towards the middle, and the mastoid process and base of the petrous portion of temporal on the sides.

In this long array of symptoms of fracture of the base of the skull, we cannot point out any one which is pathognomonic. But the diagnosis can pretty generally be made out with at least a very close approximation to certainty, by noting the coincidence of two or more of these symptoms, taken in connection with the history of the case—and, I would add, more particularly if the party was intoxicated at the time of the receipt of the injury. My experience teaches me that a very large proportion, if not a majority of such cases, occur during intoxication. In this condition of general muscular relaxation, it is surprising what slight falls will suffice to produce this usually fatal injury. That the drunkard is less liable to fracture than one in full possession of all his faculties and powers, is a general belief; and I admit its truth so far as fractures of the extremities are concerned. But I have long since been convinced, and have for over ten years taught, that the exact reverse is true of fractures of the skull and injuries of the vertebræ. The reason is apparent on a moment's reflection.

The same muscular relaxation and mental torpidity which in the drunkard protects the lever bones by preventing the patient

in falling from extending the limbs and exerting his muscles, allows the head to come down with a dead weight and an unbroken fall, when its own weight suffices to fracture it with surprising facility.

But I have dwelt sufficiently on this interesting division of my subject, and must pass on to the

Treatment of Fractures of the Skull.

The surgeon has but little to do in cases of simple fissure, so far as the treatment of the fracture is concerned. But the same general rules apply here that we have laid down when considering the treatment of contusions, these rules having in view the possible prevention of brain and other complications.

In cases of compound fractures, whether fissured or comminuted, we are likewise but seldom warranted in doing more than treating the wound also on general principles. It is in cases of fracture of the vault with depression that active interference is alone justifiable, and even here it very seldom happens that we have any good reason for acting in the absence of brain symptoms. Where these symptoms are present the brain trouble takes precedence, and the appropriate treatment will be considered when I come to injuries of the brain.

There has always been more or less discussion as to the propriety of operative proceedings in cases of fracture with depression of bone. But since the days of Pott, who advocated operations in all cases of marked depression, there has been a gradual tendency to restrict such procedures to cases of compound comminuted fracture with depression of fragments. Statistics carry little weight here; the conditions are too variable to warrant positive deductions. Each case must be studied by itself, and the surgeon must rely on his own judgment in the decision of this important question.

As a very general rule, however, we may say that, where the soft parts are not opened to the bone, although we feel that the latter is depressed, and yet no symptoms of compression exist, we had better keep our hands off. Should symptoms of compression supervene, then the question of operation will again present itself, to be determined by the principles applicable to the management of injuries of the brain—a subject which will

be discussed in the third division of this paper. But if we are dealing with a compound comminuted and depressed fracture, then I agree with the vast majority of surgical authorities in advocating the elevation of the fragments, either by gently removing them with the forceps—if necessary, enlarging the wound for the purpose—or by trepining, if this be necessary. In such cases but little additional injury is inflicted; a freer egress of blood and other fluids is provided, and it is reasonable to assume that the removal of the jagged fragments rubbing against the membranes with each pulsation, and pressing on the brain, must lessen the danger of inflammation, or of such an increase of pressure by subsequent extravasation, effusion, etc., as to soon develop symptoms of compression, suppuration, etc.

It is true, as affirmed by Prof. Gross and others, that there may be some cases of such marked depression, and with the soft parts not laid open, where, notwithstanding the absence of brain symptoms, the surgeon may be justified in resorting to an operation as a prophylactic measure. But such cases are extremely rare. A fracture with such marked depression usually is accompanied by such decided brain symptoms as to settle the matter, and therefore, to remove it from the class of simple fractures with depression and place it properly with brain injuries.

Should a case of this confessedly rare character present itself—a case of simple fracture with undoubted and marked depression—my action would be guided mainly by a consideration which I do not think has received the attention it deserves. I allude to the abruptness or the gradual character of the inclination inwards of the fragments. If the broken pieces are suddenly turned inwards, almost if not quite at a right angle, I should certainly apprehend more danger than were the inclination more gradual. In the former case, the grating of the rough inverted edges of bone against the membranes would assuredly lead to the most serious consequences, to say nothing of the probability of some of the fragments having been driven through the meninges and even into the brain. Under such circumstances I would operate to prevent—or, at least, endeavor to prevent—brain complications which are otherwise certain to occur, and from which the operation may afford the patient a reasonable chance to escape.

(*To be continued.*)

TUBERCULOSIS.

BY CHARLES G. POLK, M.D., PHAR. D.

Continued from October No.

Glycerite of kephaline is my favorite combination of the phosphorus oxides, isolated from bran and from wheat by ether, alcohol, bisulphide of carbon, sulphuric and acetic acids, and with the exception of potassium, cerebrate contains all the hypophosphites that are normal to the blood and brain.

GLYCERITE OF KEPHALINE.

Formula—

Phosphide of Nitrogen.....	1 part;
Cerebrate of Ammonium.....	6 parts;
Cerebrate of Calcium.....	8 parts;
Cerebrate of Sodium.....	3 parts;
Cerebrate of Magnesium.....	½ part;
Cerebrate of Manganese.....	½ part;
Free Cerebric Acid.....	5 parts;
Pure Glycerine.....	76 parts.

The phosphoid I call phosphide of nitrogen has not been noticed by any one else, but it seems to be identical with phospham or phosphide of nitrogen as thrown down when a solution of phosphorus chloride is saturated with dry ammonia gas and then heated. It is in granules of snowy whiteness, which are rapidly decomposed in water forming a solution of tribasic hypophosphorous acid.

The above combination is a very powerful tonic, and containing the phosphoid principles in the very formula in which they are required for brain and nerve functions, it very far exceeds every other phosphoid preparation I have ever tested. The rapidity with which this combination is absorbed, its pleasant and permanent stimulation of the nerve centres, the prompt relief it gives in nerve and brain exhaustion, especially adapt it for invigorating flagging or prostrated vital powers. Accepting the theory of Churchill, that tuberculosis is the immediate consequence of a deficiency of phosphorus in an oxydizable form, my own analyses of the deficiencies of the cerebrates in the blood, medulla oblongata, and cerebellum in those dead with phthisis, experiments any one can verify, and also the experiment of the drop of blood on the slide of the microscope, illustrating the

vivifying power of the ammonium cerebrate upon the morphological unit, the granule hastening its evolution into corpuscles, developing leucocytes endowed with organismal power, we find strong theoretical reasons for looking to hypophosphorous acid as the great remedy; but the mono-basic hypophosphites of calcium and sodium have not won the confidence of the majority of the medical profession—that they do good can not be denied by any physician who has subjected them to a fair trial. He who expects any remedy to restore a decayed and disintegrated lung is unwise; he who expects any remedy to uniformly save life after the lungs are filled with cheesy masses, whether of tubercular origin or of tyrositic degeneration of inflammatory products, will only occasionally realize his expectations. The wonderful accomplishment of impossibilities is attained only by pulmonic syrups, quack expectorants, and vitalized phosphates. Secret nostrums alone perform miracles; the scientific physician long since ceased to hope for a specific for every stage of tuberculosis; but I am confident that were Churchill's hypophosphites carefully tested in the first and second stages, especially in combination with cod-liver oil, that the benefit would exceed that attained by the latter agent alone. But chemically and therapeutically, two strong objections can be justly urged against Churchill's hypophosphites: first, they are laboratory products, and share the misfortune of being not assimilable in the form in which they enter the stomach; second, they are mono-basic hydrates of phosphorus bases, and mono-basic phosphoids are void of assimilable and nutrient property, consequently they are nutrient and assimilable just so far as they can be transformed into nutrient and assimilable types in their passage through the human organism. These objections do not appertain to the cerebrates isolated from the brains of fish, animals, and the alkaloid hypophosphite of wheat; they are in the exact formula in which they are demanded in an animal organism—they are readily appropriated, and remove the exciting and determining cause in diseases consequent upon their deficiency. The glycerite of kephaline, it may be noted, contains all the normal hypophosphites contained in the brain protagon, excepting potassic hypophosphite, consequently, contains relatively a much larger per cent. of phosphoids than does protagon. Keeping in view, then, the fact that protagon represents all the phosphoids constituents of the brain—those which are in an oxydizable as well

as in a non-oxydizable form—the superiority of the kephaline or oxydizable phophoids is inferential, and clinical experience justifies the inference.

Observation at the bed-side, a carefully noted record of facts—these collated, however—furnish a more reliable criterion for medical conclusions than vague experiments on animals, or theoretical reasoning in the closet, or uncertain results of laboratory chemistry when applied to the chemistry of a living organism. My study of the base of the brain in relation to physical conditions dates back to 1854. In March, 1855, I delivered a lecture before the Milford (Delaware) Literary Society, of which Dr. John S. Prettyman was President, on the "Inter-relation of the Brain and Vital Functions," in which I suggested that tuberculosis was the consequence of deficient nerve power emanating from the base of the brain. In 1857 I wrote on "Consumption and its Relation to Phosphorus," as my thesis for the faculty of the University of New York. Professor Mott deemed it very metaphysical and visionary, and proposed that I should write on some more ordinary subject. During that year I demonstrated, by chemical research, the deficiency of phosphoids at the base of the brain in tubercular disease; but my first recorded case I took charge of was Mrs. P., Frederica, Delaware, on the 10th of May, 1859. "Mrs. Jane P——, married, mother of two children, the youngest four years old, has had for several months a severe cough, with abundant muco-purulent expectoration; has night sweats and considerable fever every afternoon; her appetite is very much impaired, everything greasy or oily inducing acid eructations; occasionally spits up dark gray lumps, usually oval in shape, and which look as if they were formed in a mould. Three months ago her menses ceased; had taken medicine to restore the flow, but the amenorrhœa still persists. By percussion, impaired resonance is perceived in the superior lobe of the left lung, except that there is a circumscribed spot upon the posterior aspect in which it is abnormally clear. Upon auscultation, a dry crepitant rale is heard over the abnormally resonant spot, and in spots a whistling sound is detected, with an occasional note of bronchophony. Emaciation is well marked; has tried to take cod-liver oil in various forms, but no method she has yet tried has succeeded in securing tolerance by the stomach, and her repugnance is so great that it is useless to try it. Prescribed—

℞—Spts. ammoniæ aromat., - - - ℥ss.,
Tinct. cinchonæ comp., - - - ℥ivss.,
Curacao cordial, - - - - ℥iij.
M. Sig. Tablespoonful thrice daily before meals.

May 12th. The stomach more settled; appetite slightly improved. Prescribed—

℞—Protagon (from fish brain), - - ℥iss.,
Glycerole Hypophosph. comp., - ℥viss.,
Syr. Mangaues. iodidi, - - - ℥i.
M. Teaspoonful thrice daily with apple whiskey."

Upon this treatment, with such adjuvants as an occasional cough anodyne, Mrs. P—— began to improve in less than a week, and continued to improve until she, by the first of January, 1860, had become somewhat fleshy and apparently in the enjoyment of robust health. A few months afterwards she became enciente, and was delivered of a living child in the usual time. Shortly after parturition the pulmonary difficulty returned, and both she and her babe died while under the medical care of my valued friend, Dr. Albert Whitely, of Frederica, the writer in the meanwhile having left Frederica.

Case 2. Mrs. Kate T——, sister of Mrs. P., Frederica, Delaware, became a patient of mine about June 1st, 1859. Had solidification of the apex of a lung; had had hemorrhages, cough, albuminous expectoration; was considerably emaciated, and was fatigued by very slight exertion. Prescribed protagon, syr. iodide of manganese and glycerine; under this treatment she regained a comfortable degree of health within six months.

Case 3. Miss Ella L. "Acute Tuberculosis. Her family were nearly all victims of tuberculosis.

"Oct. 25th, 1859. Her lungs are badly consolidated; respiration difficult; respiratory murmur obliterated over considerable portion of both lungs; breathing much impeded and quite difficult; hectic fever marked; have been giving for week past cod-liver oil and quinia; it sickens her stomach and does injury; placed her to-day on brain phosphoids, quinia and glycerine."

In this case I continued the protagon for two weeks, varying

the adjuvants, and placed her on infusion of wild cherry bark, quinia, and aromatic sulphuric acid, but she continued to grow worse and died within two months from the time she came under my charge. Protagon in this case did not do the slightest good.

Case 4. William W—, age 46, Milford Township (Hundred), came under my charge November 3d, 1859. Tubercular Phthisis. "Mr. W. was a splendid specimen of manhood, six feet in height, weighing 210 pounds, and measuring 44 inches around the chest; auburn hair, florid complexion, and a man of remarkable physical power until about two years ago, when he contracted pneumonia. Since then he has not been well, but has had cough, much soreness in his chest, muco-puralent expectoration, night sweats, hectic fever, and become very much emaciated. He has taken cod-liver oil, but it has done him no good; for the last two months has been taking Jayne's Expectorant. It benefitted him very much at first, and he thought soon after he began taking it he would get well, but it finally sickened his stomach, destroyed his appetite, and then he ran down rapidly.

"Prescribed him protagon ʒxii., syrup manganes. iodidi ℥j., glycerole hypophosphites q. s. ad ℥viij. M. Sig. Teaspoonful in water thrice daily, nourishing diet, and six ounces of apple whiskey a day, with Jackson's cough mixture to allay the cough."

He improved under this treatment for six weeks, then grew worse, and died February 6th, 1860.

This was unquestionably a case of pneumonic phthisis implanted on a tubercular diathesis, in which cheesy degeneration of inflammatory products played the foreground part, and tubercles, although present, sustained a secondary relation. The protagon no doubt arrested tuberculization, but exerted no influence upon the inflammatory consequences and the lung ulceration which followed. I have since treated eight similar cases with a similar experience.

Case 5. Cynthia W—, daughter of case 4, had been ill several months before I saw her; menses arrested; very much emaciated; cough: muco-purulent expectoration; vomica in her lung; night sweats; much soreness through her chest.

Gave her protagon. At first the benefit which accrued from the agent seemed encouraging; she gained flesh, and the cough nearly ceased. Upon contracting a slight cold pneumonia super-

vened, and she died within six months after she became my patient.

Case 6. Joshua W—, son of William W— (case 4). Had contracted pneumonia from working in swamp covered with water, about eight months previous. He got very much better, but never entirely recovered. Considerable pain and soreness remained. The cough, which was first moderate, with a reddish yellow expectoration, gradually became more harrassing and the expectoration albuminous. The attending physician has given him cod-liver oil, but no benefit seemed to accrue from its use. He imagined it increased the soreness, pain, and the cough; at any rate, it made his stomach sick and destroyed his appetite, and inflicted more injury than benefit. Auscultation revealed extensive solidification of the right lung, except over a limited space in which it is abnormally resonant. Auscultation confirms the evidence of hepatization except in the sphere of resonance, in which the mucus rales, with gurgling sounds, place beyond question proof of the existence of a large vomica. His appetite is very deficient, scarcely relishes any kind of food, and every thing that is greasy excites disgust. Emaciation is extreme; the patient, who in health weighed nearly two hundred, is deficient of that weight at least eighty pounds. Expectoration very abundant, and muco-purulent; he expectorates little masses of an albuminous character, which look as if formed in a mould. Analysis proves them to be tubercular in character. Night sweats very profuse and debilitating, his night clothes being completely saturated with perspiration in the morning; slight diarrhœa, which he says is hard to stop; that he has taken chalk mixture and tincture of kino without benefit; his limbs very much swollen and œdematous; his throat has been sore for three weeks; nails are clubbed, and every indication of early death. Upon examining, by touch with the fingers, the mesenteric glands, they are found much enlarged, and may be traced by the fingers through the parietes of the abdomen. Case hopeless; laryngitis with partial aphonia. Prescribed—

℞—Protagon, - - - - - - ℥ii.,
Syr. manganes. iodidi, - - - ℥j.,
Syr. Hypophos. comp., - - - ℥v.
M. Sig. Teaspoonful thrice daily.

℞—Fluid ext. sanguinariæ, - - - ℥ss.,
Sulph. quiniæ, - - - - - ʒss.,
Strychniæ, - - - - - grs. ss.,
Atropiæ, - - . - - - grs. ss.,
Acidi sulph. arom., - - - - ʒii.,
Syrup prunus Virg., - - q. s. ad ℥iv.
M. Sig. A teaspoonful morning and evening.

Upon this course of treatment he had decided improvement; his appetite began to be good, night sweats ceased, diarrhœa was checked; the expectoration diminished in quantity, and was far less purulent in character; the voice nearly natural; limbs reduced nearly to their natural size; feet yet considerably swollen." Such was his condition three months after I began to treat him. From an apparently hopeless bed-ridden state he was once more occupying his arm chair, and even aiding his wife in her lighter domestic duties. One morning, not able to get his boots on, he went out in the snow with no covering but his stockings for his feet. A hard ague, lasting four hours, following, pneumonia was lighted up, and he died on the fourth day from the time he did the rash deed. Whether he would have ultimately recovered without this suicidal act, I can not say, but I do not believe that recovery in his case was possible. It is probable that the tubercles in the mesenteric glands would eventually have softened and carried him off.

I recall a case treated by Dr. Eugene Wiley and myself in 1872, in a young girl about fourteen years of age, very parallel in many points. We gave her glycerite of kephaline and malt extract. Upon this she slowly but steadily improved. The mother of the girl was impatient, and asked Dr. Wiley if he thought he could cure her. He replied that she was improving, but he could not promise a cure. The mother then consulted one of those fungi on the profession (a ward politician, than which nothing can be more debased). This man promised to cure this girl with the mesenteric glands and peritoneum studded with tubercles and a large vomica in her right lung, but in less than a month she was in her grave. The mother felt deeply the doctor's base deception.

Case 7. "L. S—, South Milford, Delaware; ship carpenter; had suffered several years from dyspepsia, and about six months before he came under my charge a dry cough began to annoy

him. He had rapidly lost flesh, and finally he became so debilitated as to be unable to follow his avocation. The cough became more free, and mucus expectoration followed. Physical signs reveal tubercular deposit in the apex of the right lung." Prescribed protagon and tonics. In four months he was quite recovered, and still lives to repeat the tale.

Case 8. Mrs. J. P—, South Milford, Delaware, March 3d, 1861, came under my charge with muco-purulent expectoration, vomica in the lung, night sweats, extreme emaciation, exhausting diarrhœa; skin dry; perspiration acid; hectic fever very marked. Prescribed—

℞—Syrup phosphates of iron, quinia and strychnia, ℥vi.,
Protagon, - - - - - ℥ii.
M. Sig. Teaspoonful thrice daily in water.

In four months, under this treatment, she regained her flesh and strength, cough nearly ceased, night sweats, diarrhœa, and hectic fever disappeared, and apart from the revelation by physical signs, she seemed to enjoy a comfortable degree of health. In 1863 she gave birth to a child, the tubercular disease returned with great intensity. Protagon did not seem to benefit her much after the birth of her child. She gradually grew worse, and finally succumbed to the disease.

Case 9. Edward Jones, negro, aged 24; ship carpenter; residence, Milford Township, came under my care May 11th, 1860. Left lung much solidified; respiratory murmur obliterated over a considerable portion of the left lung, with a circumscribed preternatural resonance; gurgling rales; bronchophony, with metallic tinkling; abundant muco-purulent expectoration; night sweats; diarrhœa; extreme emaciation and debility.

℞—Syrup phosph. iron, quinia and strychnia, ℥vj.,
Protagon, - - - - ℥ii.
M. Sig. Teaspoonful thrice daily in a glass of port wine.

℞—Cupri nitratis, - - - grs. j.,
Pulv. opii., - - - grs. ii.,
Pulv. ipecac, - - - grs. i.
M. Divide in pil no. vj. Sig. One pill every three hours.

May 18th. Diarrhœa somewhat controlled; cough still troublesome; prostration more evident; night sweats very debilitating. Prescribed—

℞—Zinci oxidi., - - - grs. xii.,
Extract belladonna, - - - grs. iii.,
Pulv. opii, - - - grs. iij.

M. Divide in pil no. xii., and give one pill morning and evening and continue the tonic mixture.

May 25th. Diarrhœa much less exhausting. Continue previous treatment.

June 10th. Died.

Protagon did not exert the least influence on the case. I believe he would have done much better on infusion of wild cherry bark, sulphuric acid, quinia and malt extract, as a tonic, with a camphor and opium pill as an anodyne. It is useless to give protagon in a case so far advanced, expecting any benefit; nothing but disappointment will follow, and a valuable remedy unjustly suffer in reputation because it does not accomplish impossibilities.

Case 10. Herman K—, machinist, Bridesburg, Philadelphia, June 14th, came under my charge. Had been in impaired health for several years; had had cough, dyspepsia, an occasional hemorrhage; cannot eat anything the least greasy. Upon examining the chest, the left lung is found very much solidified—but little motion is perceptible; dulness quite uniform over the chest, except that near the apex there is a circumscribed spot, nearly three inches in diameter, in which the resonance is abnormally clear. Auscultation indicates that a large portion of the lung is impervious to air; in the abnormally resonant space moist rales and gurgling sounds declare the presence of a large vomica. Cough loose; abundant muco-purulent expectoration; emaciation very marked; finger nails badly clubbed, and the throat congested. Had taken cod-liver oil for three years, and thinks it did him much good, but recently it has nauseated his stomach to the degree that compels him to relinquish its use. I prescribed for him.

Case 11. Mrs. Sallie M—; residence, Bridesburg, Pennsylvania; age 21; rather full habit, and had previously enjoyed good health. Was recently married, and during her wedding tour contracted a bronchial catarrh, which proving obstinate, she applied, April 4th, 1870, for treatment. Learning that her family nearly all died with phthisis, I carefully examined her

lungs; evidence of catarrhal pneumonia assuming a chronic type, was detected, as also a slight adhesion of the left pleura. Upon examining the apex of the left lung, vesicular breathing was faint, and in spots was lost, although percussion did not indicate any decided modification of resonance.

Prescribed ol. morrh. (Moller's), a dessertspoonful to be taken thrice daily in a gill of milk containing a desertspoonful of Lœflund's malt and ten drops of protagon. To combat the pulmonary inflammation, prescribed

℞—Ammonia carb., - - - ℥i,
Tinct. aconiti rad., - - gtt. viii,
Mist. glycrrh. comp. q. s. ad, - ℥iv.

M. Sig. Dessertspoonful; rub both the anterior and posterior portion of the chest with the Stokes liniment, viz :—

℞—Ol. terebinth, - - - ℥iii,
Ovi. vitel, - - - - No. i,
Acidi acetici, - - - ℥iv,
Aquæ rosæ - - - - ℥iii,
Ol. limonis, - - - ℥. M.

Upon this treatment she slowly yet perceptibly improved until June, when getting caught in a thunder shower, she again contracted pneumonia, and yielding her wishes to her husband and his mother, consented to be treated by a follower of Hahnemenian quackery. He dosed her on tincture of phosphorus until September 4th. I received a note from her stating the facts as above mentioned, and requesting me to attend her, and I reluctantly consented to resume charge.

I found her very much emaciated, cough spasmodic, the pneumogastric very irritable, the slightest amount of food exciting severe cough and frequent ejection of the food; expectoration abundant and muco-purulent; slight tendency to diarrhœa, which seemed to result from blood poisoning rather than ulceration. Upon auscultation, a large vomica was detected in the right lung, while the left, the one originally involved, was nearly normal. Upon examining the urine it was found to be highly albuminous. Prescribed

℞—Ext. malt (Lœflund's), a dessertspoonful,
Bromide potassium, half drachm,
Milk, - - - - ℥ii.

Take every three hours, with beef juice and port wine.

September 6th. Stomach not quite so irritable. Continue same treatment.

September 8th. Continue same treatment with the addition of ten drops of the glycerite of kephaline with each dose.

September 15th. Mrs. M. improving. Stomach retains food; appetite better; diarrhœa disappeared; night sweats yet prostrating; expectoration not so abundant and less purulent in character; less albumen in the urine. Same treatment, with oxide zinc and atropia at bed time.

October 1st. Mrs. M, gaining strength and flesh; cough yet troublesome; expectoration mucous with a slight trace of pus.

October 15th. No albumen in the urine; cough much better, but slight soreness in the lung; appetite excellent; expectoration mucous; vomica seems to be healing.

November 1st. Thinks she don't need any more medicine; some cough remains, but it is slight. She agrees to take cod-liver oil and malt until well and strong.

January 1st, 1871. She claims that she is well and does not require medicine.

March, 1871. Again has an attack of pneumonia, and takes infinitesimal nonsense.

June 4th. Applies to me again for treatment. Right lung again involved, but in the middle lobe; the apices not involved—diagnosis chronic pneumonia. Treatment—cod-liver oil and extract malt, with hypophosphites of lime and sodium. Cough mixture—muriate of ammonia and brown mixture. Upon this treatment she gained slowly until October, 1871, when my own rapidly failing health compelled me to seek the sunny land of my birth, from which I then promised no return. Mrs. M. then passed from my observation and died in the fall of 1872.

Mrs. M.'s case has several suggestive points connected with it which seem to verify some theories I had previously entertained. It seems to me that it marks very clearly the boundary line between tubercular and pneumonic phthisis, but whether the tubercular deposit in the apex of the left lung antedated the bronchial catarrh can not now be determined. Still I entertain the opinion that while the predisposing and determining causes were previously in operation, these may have been comparatively inactive until the inflammation developed them into active movements. Was there any relation between the tincture of phosphorus and the albuminous urine? I believe there was.

Dr. G. Tempini, I think, advanced the idea that a too-long continued or an excessive use of phosphorus will produce fatty degeneration of the kidney, and although the idea has not been reiterated by any respectable authority, the result in this case seems to me very suggestive. If the continued use of phosphorus will produce nephritic albuminuria, the fact should be fully recognized. An agent so extensively administered, and often for months in succession, if it does produce this fatal malady it must inflict a greater injury to mankind than all the benefit can confer, can repay. But this is no argument against its judicious employment. Mercury is capable of mighty mischief if too long or injudiciously used, and yet what judicious physician would think of discarding it from his chosen list of remedies? Opium may also produce serious consequences, and yet is, I think, justly given the first place in the catalogue of remedial agents, "the great gift of God to man." The fact that the last attack did not while under my observation involve the apex, indicates that while there was decided lung vulnerability the tuberculous diathesis was held in abeyance, and the lung disintegration was the consequence of caseous morphology of inflammatory products.

Case 12. Theodore S—, clerk in the establishment of his brothers, surgical instrument manufacturers in this city. Had been troubled with cough for two years, and was also subject to severe and frequent attacks of angina pectoris. The prompt relief I gave in an attack of the angina pectoris, while visiting Bridesburg, induced him to place himself under treatment for the lung trouble (giving me the preference over a very distinguished physician who had been treating him for two years).

Prescribed, September 24th, 1869,

℞—Glycerite of kephaline, - - ℥xii,
Syrup iodide of manganese, - ℥i,
Glycerine, - - - - ℥viss.

M. Teaspoonful thrice daily with a dessertspoonful of malt extract before meals. After meals,

℞—Fl. ext. valerian, - - - ℥ii,
Tinct. cinchona compound, - - ℥ii,
Tinct. digitalis, - - - ℥iii,
Elixir calisaya q. s. ad., - - ℥viii.

M. Sig. Dessertspoonful after meals.

Mr. S— had some dulness in the apex of the left lung; had had hemorrhages, abundant mucus expectoration, night sweats, and yet under the above treatment he regained comfortable health, which he still enjoys. I did not give Mr. S— cod-liver oil, because he had already taken it and complained of nausea resulting from its use.

Case 13. Mrs. J—, residing in Bridesburg, came under my attendance.

May, 1870. Tubercular phthisis verging into the second stage. Menses suppressed. Treatment—cod liver oil, malt and protagon. Recovery.

Case 14. Miss A. M. P—, of Delaware, has been a patient of mine for four years. This lady, forty-three years of age, had been in ill health nearly twelve years; has had cough, night sweats, exhaustive diarrhœa, and four months ago emaciated to a mere skeleton. Heretofore she had refused to take protagon, on the plea that it sickened her stomach and increased the diarrhœa, but finding herself approaching the grave she agreed to try it once more. I prescribed the following—

℞—Protagon (from the brain of the cow), - ʒvi,
Alcohol, - - - - ℥i,
Oil eucalyptus, - - - - ʒii,
Cod-liver oil (Norwegian) - - ℥viii.
M. Take a dessertspoonful twice daily.

Under this treatment the diarrhœa and night sweats disappeared, her appetite returned, digestion became excellent, and to-day (October 25th, 1876) she is visiting my house declaring herself entirely well. She is fleshy and the very picture of health.—(New Remedies, 1876, page 345.)

Case 15. "Miss Helen G— came under my charge August 30th, 1876. Rather delicately built, with that rare blending of the spiritual with the intellectual; without much vital force her case was exceedingly unpromising. I saw her first while she was having a severe pulmonary hemorrhage, which being subdued, I examined her chest. Vesicular murmur absent from the apex of the right lung; muco-purulent expectoration; very annoying cough; appetite not good; cannot tolerate anything greasy or oily. Prescribed cod-liver oil and malt, with ten drops of

glycerite of kephaline thrice daily, and the following cough mixture—

℞—Spts. chloroform, - - - ʒii,
Hydrobromic acid, - - - ʒii,
Tinct. squills, - - - ʒv,
Fl. ext. liquorice, - - - ʒviii,
Syrup, - - - - ʒxii,
Aquæ anisi q. s. ad, - - - ℥viii.

M. Sig. Tablespoonful every three or four hours when the cough is troublesome.

Under this treatment she steadily improved until January, when she declared herself in better health than for several years, and I deemed it unnecessary to give more medicine.

Case 16. Mrs. P—, Madison Avenue. Incipient phthisis. January 10th, 1877, came under my medical direction. Cannot take cod-liver oil. Prescribed Lœflund's Malt Extract and glycerite of kephaline. Rapid improvement, and at date complete recovery.

Case 17. Ellis Gibson. January 12th. Well advanced case of phthisis. Glycerite of kephaline and extract of malt.

February 1st. No improvement. Cod-liver oil and malt.

February 14th. Disease stationary.

March 1st. Rather better.

April 1st. Slight improvement. Oleo hypophosphite cod-liver oil and malt.

April 15th. Still improving. Have not seen him since.

Kephaline seemed inferior to cod-liver oil in this case. In advanced cases it is unquestionably an indispensable therapeutic, when the stomach can be persuaded to take it. I very seldom omit it. When we survey the morbid conditions attendant upon tuberculosis, the deranged relations between the fats and the albuminoid elements of the chyle, the digestibility of the cod-liver oil and its assimilation, we naturally think of it as the most desirable of oleaginous substances to supply the amount required in the development of normal chyle. No other oil is so well adapted to this metamorphosis. But the value of cod-liver oil does not end with the part it plays in supplying a readily emulsible form of olein, or the immediate influence it exerts in

molecular evolution. It acts a direct part in absorbing and neutralizing the butyric acid, and thus corrects in an important degree the lesions in the digestive function. It also contains a small amount of oleo hypophosphite and glycero hypophosphite. These no doubt contribute to its value, but I imagine very much of its value depends upon the amount it contains of the chloride of propylamin. The value of the latter agent has been pretty extensively demonstrated in rheumatism, and the verdict has been in its favor. In rheumatism there is an excessive development of lactic acid; this the propylamin corrects. In tuberculosis we have butyric acid in the small intestines, and I positively believe that very much of the good of cod-liver oil results from its power of absorbing the acid, or neutralizing the acid condition of the duodenum, because the amount of cod-liver oil itself is too small to exert a direct influence as a supply of an oleaginous principle. The following case seems to justify this conclusion—name and residence published by permission.

Case 18. John Brady, 712 South 21st street, Philadelphia, glass-blower, came under my charge March 6th, 1877. Was extremely emaciated; had had cough, night sweats; no appetite; everything fatty caused pain in the duodenum, acid eructations, and nausea; very little expectoration. Auscultation revealed considerable consolidation of the apex of the right lung. Prescribed—

R—Glycerite of kephaline, - - ʒxii,
Propylamin, - - - - ʒii,
Tincture of iodine, - - - ʒii,
Pure glycerine, - - - - ℥xii.

M. Sig. Dessertspoonful thrice daily, with two teaspoonfuls of the extract of malt.

June 7th. Is well, gaining flesh and strength, but occasionally coughs up "little lumps like lime." He could not tolerate cod-liver oil, or I should have prescribed it.

Case 19. Mrs. C—. Phthisis, second stage. May 6th, 1877. Same prescription as Brady.

June 7th. Is rapidly improving but continuing treatment. Had taken cod-liver oil two years without benefit. I have thirteen phthisical patients on the same treatment, and eleven of them are doing well.

The conclusions to be drawn from the above record are: That tubercular phthisis in its earlier stages may be frequently cured; that invigorating the nutritive function and supplying the system with the missing phosphoids are grand indications. To fulfil the first indication, cod-liver oil and malt extract are the most efficient remedies; for the second, the brain phosphoids from the brains of animals, fish and birds, as also the alkaloidal hypophosphite from wheat. As the phosphates and phosphites taken into the stomach are only imperfectly appropriated by the system, the cerebrates or brain hypophosphites are to be preferred; hence I have deemed it desirable to isolate these from protagon and form a soluble mixture of only cerebrates—the glycerite of kephaline.

I entertain a strong preference for the Norwegian cod-liver oil (the white only is fit for use). I think it is much more efficacious than the Newfoundland or New England oil. That furnished by Mr. A. C. Dung, N. Y., is unsurpassed in sweetness, freedom from disagreeable taste, and in medicinal efficacy.

A few words on the complications which frequently are met with in the treatment of tubercular phthisis.

Night Sweats. Ths most efficient remedies I have found in this condition are atropia in doses of one-eighteenth of a grain, and the oxide of zinc in doses of one grain. These may be combined in a pill and taken every four hours. Tannic acid, gallic acid, sulphuric acid and salicin I have observed. With salicylic acid I have no experience, but would *a priori* expect good results.

Hectic Fever. This depends upon the presence of tubercular pus in blood. Quinia, carbolic acid, salicin, sulphuric acid and permanganate of potassium, are the agents on which to rely.

Diarrhœa. This complication may depend upon several different conditions. If it depends upon congestion of the chylopoietic viscera with torpidity of the liver, a dose of blue mass will prove of usual efficacy; it may be combined with rhubarb, or followed by a saline laxative, as a half-ounce of the phosphate of sodium. If it depends upon pus globules, carbolic acid, creasote, bisulphite or the hyposulphite of sodium or salicin, may be tried. I have a preference for carbolic acid. If it depends upon ulceration of the intestines, subnitrate of bismuth, pepsin and morphia, in cases attended with fever and abdominal tenderness,

but in the absence of pain and tenderness, I have obtained better results from the solution of the ternitrate of iron than with anything else. Occasionally I have witnessed benefit from a pill containing a grain of opium and a fourth of a grain of the nitrate silver or the sulphate of copper, giving usually a preference to the former.

Cough is best relieved by the agents which relieve the morbid condition upon which the cough depends. Whatever improves the general health as a rule will relieve the cough. If irritation and inflammation supervene, these conditions must be treated on general principles. Counter irritation by blisters, croton oil, and stimulating liniments, may be tried, and will often be of decided benefit in cases in which there is either pleurisy or pneumonia present, and these often supervene during the progress of tubercular disintegration.

Too often, however, all these means fail, and science and art must admit their inadequacy to cope with this faithful messenger of death. To palliate the suffering with anodynes, and prolong existence with beef tea and stimulants, are the last offices of the physician. The impress of death steals like the autumn frost, sketching upon the patient warning of the coming hour. There is a melancholy yet spiritual emotion awakened in contemplating the wasting wreck of humanity, and the finer elements of our nature, impressed with the sure event, mingling our sympathies with the stricken one, seem to catch a glimpse into the spirit land, and behold brighter visions as mortality approaches the confines of immortality. The wan, emaciated form, and the sunken eye gleaming with an unearthly brightness, foretels the end is nigh—that soon mortality shall be exchanged for immortality—that the green fields, the murmuring brook, and the music of the feathered songster, will gladden the heart no more. Mind triumphs over matter—the spiritual transcends the mouldering clay. Amid the wreck of the material body, the immaterial and immortal mind evinces more fully its heavenly birth and soars aloft into the infinite.

Indeed, as Dickens has beautifully said, "Life and death are so strangely blended, that death takes the hue and glow of life, and life the grim and ghastly form of death."

2349 Catherine street, Philadelphia, Pa., June 7th, 1877.

CURRENT MEDICAL LITERATURE.

ON THE STATE OF THERAPEUTICS IN TETANUS.

An article from the August number of the "Practitioner."

It is clearly evident, as the author of this paper himself states, that its purpose is to briefly sketch the history of the success and failure—especially the failure—of the powerful drugs used in the treatment of this disease, in the belief that such a summary makes an appeal to pathology to throw fresh light on its nature. Experiment seems now at fault, and appealing to physiology, asks for a better knowledge of the conditions to be met, hoping in time to accomplish more satisfactory results. The ancient treatment of tetanus was only palliative, and proved unsuccessful. Modern medicine, in despair for a specific, forgets that she is armed with a sheaf of weapons that would have made the ancients contented. In our attempts to cure, we have arrived at alleviation, and often to the extent of effecting a cure, which encourages the hope of future success. As to chloroform, certainly if this drug was curative we should all know it, as its general use has ensured it a wide trial. True, the fatal symptoms generally disappear under the inhalations of chloroform, only to recur, however, after its removal, with unabated violence. The quantity used may be very great. Dr. Panthel, of Limburg, in one case used ℥vi. on the first day, and Dr. Simpson narcotised a child for thirteen days, using in all one hundred ounces. Chloroform is now rarely used, but chloral and Calabar bean, the drugs whose physiological action are similar to it, are much in favor. As regards chloral, it is evident that large doses must and can be given without fear, and that such treatment is valuable. There is a successful case reported of a boy, 2½ years of age, who took 200 grains daily. Dr. Ballantyne, of Dalkeith, gave ℥iij. in 24 hours, and Dr. Carruthers reports the case of a boy who took 1140 grains in 16 days. Alphonse Deu gave 150 grains a day without good result. In 1872, Dr. Oré injected into the veins a solution containing 1-3, and though the operation was unsuccessful, vaunted his method. In 1874, Cruveilhier used in the same a solution containing 1-5, and failed. Lannelongue prac-

tised it with the same result, post mortem examination revealing thrombosis in the injected veins and clots in the right heart. In 1874, the method of Dr. Oré was denounced in Paris, which ended in its being abolished. Opium with chloral has been found successful. Nitrite of amyl, which, like chloral, Calabar bean and opium, lessens the reflex action of the spinal cord, but unlike them excites the circulation, has been tried and failed. Bromide of potas., combined with chloral has been used successfully, though alone its beneficial effects are doubtful; from 150 to 480 grains have been given daily without success. Aconite has had some remarkable results attributed to it. The first instance of its use occurs in 1846, and was reported in the *Lancet*. In this case, which was tranmatic, there was a remission of all symptoms after a three-minim dose; the symptoms recurred, however, and the dose was repeated, followed by cold skin, clammy sweat, pulse 120, weak and intermittent. The treatment seemed to consist in balancing the patient between tetanus and syncope. In 1859, Campbell de Morgan treated a mild case successfully, the patient taking ʒij. of the pharmacopœial and ʒv. of Fleming's Tincture (length of time not stated). Aconite lowers the pulse and decreases the muscular contractions, but the effect of the drug is dangerous. Curare was first used by Villa, in Italy, in 1859; it seems to have fallen into bad repute, in spite of the successful cases reported by Stoffani and others. It may be considered useless, uncertain and dangerous. Calabar bean has a well-deserved reputation. Eilert, in 1873, pretends, that of opium, chloroform, chloral, curare and Calabar bean, the latter is the only one that acts satisfactorily on the spinal cord. In 1864, Holthouse reported two cases, one successful, in which he used 3 grains of the extract every two hours. Dr. Eben Watson reported two tranmatic cases in the *Edinburgh Medical Journal*: both recovered. Maunder, Ashdown, Prof. Spence, and Dr. Dickenson, all report the drug used unsuccessfully. The proper mode of administering is by hypodermic injection of 1-3 of a grain of the extract every 2 hours. Cannabis indica, so highly esteemed by many in the profession, is very briefly considered.

J. M. W.

INSOMNIA AND ITS TREATMENT.

In the numbers of the *Archives Générales de Médecine* for May and June, 1877, appears an article on this subject by Villemin.

There is no attempt at anything novel or original in the paper, but it consists of a careful compilation of the views of different writers on insomnia. The question is treated under three heads: 1, the physiology of sleep; 2, the causes of insomnia; 3, the treatment of insomnia. The general conclusions from the whole article are as follows.

1. Sleep is the result of a diminution of cerebral cell activity, induced by the fatigue or exhaustion following mental or bodily exertion. These physical conditions modify the vaso-motor system; the afflux of blood to the brain is reduced, and a condition of temporary anæmia takes place. The cerebral activity is thus diminished, and sleep follows, during which the nervous elements are repaired.

2. The cause of insomnia is a persistent abnormal activity of the cerebral nervous elements, due to some internal or external irritation. It may also be due to active congestion of the brain, which causes abnormal functional activity of its cellular substance.

3. Insomnia may also be the result of a peculiar nervous condition, associated with general anæmia, in which, owing to changes in the nervous elements, there is a modification in the circulation of the brain.

4. In the treatment of insomnia, it is important to first ascertain its cause. Slight cases are usually successfully treated by general hygienic measures.

5. Insomnia occurring during acute or chronic maladies cannot, as a rule, be rapidly relieved. Therefore, while waiting the recovery of the disease, the symptom is to be treated with hypnotics, at the head of which is opium and its alkaloids.

6. Morphia is the most somniferous principle of opium. Narcein and codeine, although less active in this respect, leave fewer traces of headache and malaise. Opium preparations are more particularly useful in insomnia associated with pain. They are contra indicated when there exists any cerebral congestion.

7. Bromide of potassium has a much less powerful hypnotic action than opium. Its use is indicated in those cases due to excitement of the cerebral circulation, in which opiates are useless and injurious. It has been employed successfully as a calmative in children. It is contra indicated in cases of marked anæmia.

8. Sulphate of quinine, like the bromide, appears to exercise the action of relieving the congestion of the cerebral nervous elements.

9. Hydrate of chloral is an excellent hypnotic in almost all cases of insomnia, but it is to be given with caution to persons suffering from dyspnœa, cardiac affections, or great debility.

10. The insomnia of old persons or patients suffering from great debility or anæmia is sometimes successfully treated by tonics, stimulants, and hydropathy.—*London Medical Record*, August 15th, 1877.

ALBUMINURIA AS A SYMPTOM OF (RECENT) EPILEPTIC ATTACKS.

In the *Berliner Klinische Wochenschrift* for October 16 (No. 42), 1876, Dr. Otto, of Pforzheim, reviews the controversy between Huppert—whose paper in Virchow's *Archiv*, Band 59, affirmed that albumen was almost always present after an epileptic seizure, whether complete or abortive—and Karrer, who, in the weekly journal above quoted, denied the accuracy of Huppert's conclusions, on the grounds of experiments made on the urine of twelve epileptics. Huppert's test was boiling and nitric acid, and he trusted a good deal to turbidity after standing. Karrer used the more delicate test with ferro-cyanide of potassium. Dr. Otto now adduces 31 examinations of urine, using the same reactions as Karrer; the urine was taken immediately after the epileptic paroxysms, and he took care to satisfy himself that, in the intervals, the patient's urine was free from albumen. Two hours after the attack, the urine was again taken and tested. In the urine passed immediately after the fits, boiling and nitric acid never gave him any reaction indicating albumen. Ferro-cyanide of potassium gave a precipitate in three instances, very copiously once; and cloudy turbidity three times. In the urine taken two hours after the attack, boiling and nitric acid gave strong turbidity twice, and a bulky precipitate once; that tested with ferro-cyanide of potassium gave turbidity six times, and precipitates six times. Altogether, there were albuminous reactions 22 times in 31 cases, or 14 times with one reagent, 4 times with both; precipitates 12 times, turbidity 12 times. If the turbidity be allowed as a sign of albuminuria, it must still be said that it is not every attack of epilepsy which produces temporary albuminuria. If we reject mere turbidity and insist on a precipitate, we shall find that there were only 12 of the epileptic seizures which were followed by albuminuria. The 31 attacks were in twelve patients; the 22 reactions in seven patients; so that there were five patients whose urine gave no traces of albumen after the paroxysms. On several occasions, in the same patient, the urine after one attack showed albumen, but showed none after another attack. The twelve cases with precipitates were in six patients. All those with albumen were severe and complete paroxysms. But so were several of those in which there was no albuminuria. After abortive attacks, no albumen was found in any case. The most severe attacks showed most albumen. The presence of this substance was doubtless due to the disturbed circulation and altered blood-pressure. The presence of albumen in the urine is, therefore, only a corroborative proof of such attacks, and its absence does not prove that there has been no paroxysm.

[The reporter, in commenting on this controversy, in a previous number, came to the same conclusion as Dr. Otto from his own experiments. He begs to suggest, in future inquiries, that not

less than three or four tests should be used. As nitric acid and boiling, and prussiate of potash have already been tried, why not use, 1, alcohol; 2, a saturated solution of picric acid; 3, Tidy and Méhu's test, *i. e.*, crystallized carbolic and glacial acetic acid in equal parts; and 4, Millon's reagent, the acid nitrate of mercury?]—*London Medical Record*, July 15, 1877.

ON ALCOHOLISM.

By Dr. Samuel Wilkes, F.R S., Physician to Guy's Hospital.

Although alcohol may not be directly a food, yet indirectly it may be so; for, if two men be taken, and one have nothing whatever to eat, and the other have alcohol given him, I presume the latter will remain alive the longer. It must certainly be oxidised; and persons who take a large quantity of spirits grow fat, as we shall presently see.

If, however, we do not understand its physiological workings, yet we can see the effects of it on the system for all practical and clinical purposes. In the first place, does alcohol appear to be a necessary food? There can be but one answer. There are many nations who do not take, and some whose religion forbids its use. Is it necessary for us? Well, you know many in this country who do not take any. It is not a necessity then; it is for this we have to contend, and, if I can impress this on you, the hour will not be wasted. English people are, however, too often brought up with the idea that it is a necessary article of diet. Patients will take their wines and spirits even when they are doing themselves harm, and, if you object, will ask, "What must they do?" You tell them to do without them; to which they will reply that they must take something. I want you to get it thoroughly out of your minds that there is any *must* in it, and start afresh with the idea of its non-necessity.

Let children always live and grow up without alcohol; in after years, when we pass an artificial life, there may be reasons for taking it; but remember, even then it is not an absolute necessity. Start with this principle; let your patient, even an adult, try to do without it, and then, and if circumstances seem to suggest it, let him have his glass of wine. I do not say that a number of persons can do entirely without any in our present mode of living, but let us regard alcohol in its true light, as a luxury, as we do tea, tobacco, etc. If we do this, we are safe. I cannot recommend you to live entirely by rules and natural laws, and give up all the conventional luxuries of life, for then we should dismiss more than half the dishes from our table. I do not want this to come about, and, for my own part, I like a glass of wine or a cigar as well as other people. There is in to-day's paper an account of some vegetarians who never eat any meat. I do not advise you to follow their example, but it

shows you that meat is not essential to life. We might, I have no doubt, live on what Dr. Johnson states Scotchmen and horses do, viz., oats.

What are the effects of a small dose of alcohol? It is said to be stimulant. If a man be jaded and tired, it gives a sort of temporary support; a little beyond this point, and he is depressed, the stimulant effect lasting only for a time. There is a dilatation of the vessels and warmth of the surface taking place; at the expense, however, of internal heat. In large doses, the temperature goes down. On this point read two cases mentioned by Mr. Carrington, in that admirable essay of his on Alcohol in Guy's Hospital Gazette.

Do these small amounts really stimulate and help one in his work? I ask the sportsman; he says he gets tired, and then has lunch, after which he feels comfortable and jolly, but never shoots another bird. It is the same with billiard-players. A violin-player in my house was advised to take a glass of wine for his excessive nervousness, but refused, saying, "I know I shall lose all my nervousness, but I shall also lose my touch, and my notes will be blurred, and I shall be the last to find it out, although it will be very apparent to others."

You see, therefore, it does not stimulate or add edge to our accomplishments; but we might ask, does it add to our strength, or enable us to endure longer? To answer this, I will refer to a little book in my hand by the late Dr. Parkes, entitled, On the Issue of a Spirit Ration during the Ashantee Campaign. This book contains the reports of the medical officers on the effects of spirits doled out to the men. The result is given in the short preface written by Dr. Parkes, to the following effect.

"When, as frequently happens in campaigns, soldiers are marching nearly the whole of the day, and can obtain their regular food only late in the evening, what can be given to lessen the sense of fatigue, and to enable them not only to continue the march, but to be ready for any emergency which may arise? The usual resort is to a spirit ration, and there is no doubt that for a time this exerts a reviving effect. But is it the best thing which can be given, and are its advantages without alloy? I think it can be shown that it is not a perfectly reliable aid, and requires, when used at all, to be so with a full knowledge of its mode of action. The first effect of alcohol when given in a moderate dose (for example, what is equal to one fluid ounce of absolute alcohol) is reviving; but this effect is transient. As shown in the report, the reviving effect goes off after, at the utmost, two and a half miles of additional march, and sometimes much before this; then the previous languor and sense of exhaustion not only return, but are sometimes more intense, and if alcohol is again resorted to, its effects now are less satisfactory. Its reviving power is usually not so marked, and its peculiar anæsthetic and narcotising influence can often be distinctly traced. The men feel heavy, dull, disinclined to march, and are less wil-

ling and cheerful. It is clear, then, that alcohol is not a very trustworthy aid; for, supposing a commanding officer having marched twelve or fourteen miles, and desiring to cover ten more miles, finds his men weary, and not being able to halt and feed them, orders an issue of spirits of an amount sufficient to revive, but not to depress; the first effect will be good, but, in less than an hour, his men will be as weary as before, or probably more so. If, then, he re-issues the spirit within so short a period of time, it is certain that, in the case of many men—perhaps the majority—the marching power will be lessened. Even the reviving power of the first issue is not always so considerable as might be supposed; and, indeed, I have been surprised to find how little good effect it has sometimes produced."

The fact is that alcohol, as usually taken, is not a stimulant at all. It is a depressant and narcotic. People are simply under a delusion when they think it otherwise. We ought to change its name, and we should then get a proper notion of its character. I believe this change would tend more than any other single circumstance to make people cautious in its imbibition. It is taken for the same reason as chloral, and as opium in other countries. If you regard it as a narcotic, you will then better understand all the consequences of its use. A man in a drunken brawl over night gets his teeth knocked out. The next morning he has no recollection how it occurred, or in what manner he could have met with the accident. Cases such as this are constantly being brought into the police courts, and to some people seem almost incredible.

Alcohol, you see, is an anæsthetic. The man we have just mentioned has felt no pain. In smaller doses, as you all know, it benumbs not only the sense of touch, but that of sight and taste. Every man who has drunk much wine feels that he has lost his taste for the time. He does not know whether he is taking good or bad. "Every man at the beginning doth set forth good wine, but when men have well drunk, then that which is worse." If it were a stimulant, your taste ought to be more refined. It seems to be an utter absurdity to suppose that human nature can crave after a stimulant. For what are people craving? For what is a hard-worked man longing? Not for a stimulant, but for holiday and repose. It is for repose that every one is seeking. Some miserable people even long for death, "where the weary are at rest." Is not the cry of the lotus-eaters as far reaching as humanity itself? "There is no joy but calm?" It is contrary to human nature to crave for stimulants. The idea is absurd; and the more one knows human nature and its history, the more one wonders how such a name as stimulant could be given to any substance which has had so powerful an influence on the human race as alcohol. It might be known that anything so craved after must be of a soothing, benumbing, or dulling nature. People say they feel better after taking alcohol. Of course they do; one does feel better.

If any of you, whilst working up for your College or Hall, get down-hearted, and take a glass of wine or spirits, I have no doubt you feel better; but would you go on with your work? or, would you not go to sleep, or take the newspaper and sit over the fire? If a man have a racking pain in his head, a strong glass of brandy and water will often drive it away: a proof of its narcotising effect on the brain. A man worn out with anxiety and pain, does he want a stimulant to increase these feelings? Is he not making use of a misnomer when he takes a stimulant to drown his sorrows in the bowl? Do not the lower orders, as in an Irish wake, know the benumbing influence on grief? Is it likely they would have recourse to a drink in order to increase their susceptibilities? If it were a stimulant, it would bring out our faculties; but, instead of this, it paralyzes our intellect and then allows all the bad passions to have free play. This is the meaning of *in vino veritas*, just as a madman loses his will and control by his higher faculties becoming paralyzed.

An immense evil has been perpetuated by giving alcohol a wrong name. It is called a restorative and stimulant; but this it is only to a very slight extent and under special circumstances. Its general effect, and that for which it is almost universally used, is for its benumbing action. I want you to think of it as a depressant, an anæsthetic and narcotic rather than as a stimulant, and you will then get an insight into its injurious effects on the human body.

As a medicine, of course, it is a good one. It is excellent as a sedative. After trying opium and chloral without success, alcohol will often give a good result in the severest neuralgia. It lowers the temperature in febrile conditions, sometimes two or three degrees. This is especially the case in typhoid fever and pneumonia. A quick pulse and high temperature call for it. There was an old man in this state last year in the ward; and I believe his life was saved by the large quantities of brandy that he took. It seems to prevent tissue-change; and large quantities seem to make a person fat. There was one case of it in this hospital some time ago, of a woman who had suddenly taken to drink spirits and became inordinately fat. It is curious that, with all my reluctance to order alcohol unless I clearly see its necessity, I never find any one but myself order spirits of wine as a food to promote the growth of fat; but its effects in this respect are very striking. Little children wasting away, such as those who are not suckled, may have cod-liver oil and steel wine given them, and yet still waste; but, if put on alcohol, will often get rapidly fat and well. I have now seen several such cases.

What are the effects of alcohol, if taken in excess?

Now, I am not going into the subject of drunkenness, but may mention that some of the effects are possibly due to the impurities put into the spirit. The adulterations of beer, I have no doubt, give rise to other symptoms than those arising from tak-

ing the genuine liquor. It is a horrible thing to contemplate that rich people, holding high positions in parliament and society, should be gaining large incomes out of houses where poison is sold. An officer of a regiment met me one day, almost in tears, because one of his men, under the influence of drink, had committed a murder, and, "I believe," he said, "the beer was drugged, and no one is to be punished but the man who drank it." In Paris, there is a terrible liquor called absinthe; and patients are often being brought into the hospitals mad through intoxication from it.

Then, besides ordinary drunkenness, we have dipsomania; a disease for which many want to legislate. The subjects of this are not, for a time, responsible persons. They feel a craving coming on, and sometimes have strength of mind to go at once to a medical man and ask him to take them into his house, or shut them up in a lunatic asylum to restrain them from committing themselves. I once had a clergyman in a country district affected with this under my care; and he had nearly ruined himself. When the fit came on, he used to go to the village ale-house, and take glass after glass until he was drunk. Now, knowing when the fit is approaching, he rushes away from his home and takes the train for London. There is no use in talking to that man; he is as well informed as you; he merely asks for assistance. There is a little book published on this point, styled *Who is to Blame?* It is well worth your while to read it. It is an account of a man who gets drunk, shuts himself up in an asylum, but, as there is no power to retain him, he rushes out when the fit comes on him, goes to the public-house, then home, and kills his wife.

Then, there is chronic alcoholism, bringing about dyspeptic and other symptoms only too well known. I have no hesitation in saying, although I am speaking against the evil effects of alcohol, that a considerable part of my income is derived from the drinking propensities of my patients. Every day some young man comes to me, with mottled face, yellow eye, and red tongue, saying the first thing in the morning he is sick, and the vomit sometimes streaked with blood; his bowels are loose, and he does not eat his breakfast. I have then heard quite enough to enquire how much whiskey or sherry he takes at 11 a. m. You may have observed that whiskey has taken the place of brandy in the medical dietary. I have failed to discover the reason, so I suppose it is a secret of the distiller's. He, of course, remembers well the ominous hour of eleven; and you then have only one duty to fulfil—*i. e.*, to tell him he is killing himself; and, if that be his object, he had better continue in his course. If not, he must desist; and you will assist him in his endeavor.

If the practice continue, the liver undergoes cirrhosis, and the kidneys become granular; and in some cases there is a special tendency for the cerebro-spinal system to be affected. Thus, in delirium tremens, long before the attack, a man is foolish and

half-witted, what is called a good-natured fool. The brain wastes, and weighs several ounces less than it should. This was figuratively expressed by Shakespeare when he said—"Oh, that a man should put an enemy in his head to steal away his brains." The spinal cord also is attacked, and a paraplegia may result, so that the popular saying is quite true, that some persons get drunk in the head and others in the legs. The effect on the head is very well known; that on the spinal cord does not appear to be so readily recognized.

Alcoholic paraplegia is generally found in women of about the middle age of life. It is ushered in by pains in the limbs, then sensation may be partially lost, at the same time some want of power to move them. So you see the chronic action of alcohol resembles much its acute temporary effect where the man getting drunk is narcotised, foolish, and loses sensation, so that one can do anything with him, his hand trembles, he cannot find his house in the street, fumbles in his pocket for his key, and his vision is so indistinct that he declares some one has run away with the key-hole.

Alcohol produces a chronic inflammation of the brain and cord with their membranes. These latter are thickened, and the nerve-centres waste and often become what is called sclerosed. It is very difficult to say when a functional malady has become an organic disease, so that in these cases, however bad they may appear, there is a possibility of ultimate recovery.—*British Medical Journal*, December 30, 1876, p. 845.

CASE OF INCLUDED FŒTATION.

By W. E. Rodgers, M.D., of Memphis, Tenn.

On the 8th day of June, 1875, I was requested to operate on Jefferson Walker, of Coahoma county, Miss., for stone in the bladder. I invited Drs. Jones, Nuttall, White, Sim, Morgan, and Blair, to witness and assist in the operation. Dr. Heber Jones administered the ether. Dr. J. H. Nuttall took charge of the staff. I performed the lateral operation. Having satisfied myself that the knife was well in the groove, I passed it on towards, and, as I thought, into the bladder and withdrew it. On introducing my finger to explore for the stone, I discovered to my mortification that the knife had not entered the bladder. I readjusted the staff, and directing Dr. Nuttall to hold it firmly against the pubis, I passed the knife into the bladder. Upon examination I found a stone as large as a guinea-hen's egg, which was extracted without difficulty. Nothing unusual occurred until the second day after the operation, when the mother of the boy handed me a folded paper, saying, "Here, Doctor, is something that come from the cut you made in Jeff." Upon

examination I recognized the contents of the paper to be fœtal bones—the lower half of both femurs, two ribs, an ulna, half a radius, a complete scapula, and numerous particles of osseous debris. I invited several members of the profession to visit the patient with me, and to explore the wound for the remainder of the skeleton. Drs. Armstrong, Jones, Morgan, Churchill, and Nuttall accompanied me, and we could with the probe feel the remaining bones in a sac which was situated between the prostate and perineum. The patient complained of great pain during the examination; and having satisfied ourselves of the existence of more bones we desisted (thinking the case did not demand instrumental delivery), with the determination to open the rectum at some future day, and deliver, if the bones did not pass out through the wound. This they continued to do until I collected fourteen perfect bones and seventy-eight pieces of bone.

The condyles are perfectly formed, and the epiphyses are completely ossified and firmly joined to the shafts of the long bones. The presence of the bones and discovery of the sac accounted for my apparent blunder in the operation. I felt the knife pass into the sac, which I mistook for the bladder.—*American Journal of the Medical Sciences.*

REVIEWS AND BOOK NOTICES.

Cyclopædia of the Practice of Medicine. Edited by Dr. H. Von Ziemssen, Professor of Clinical Medicine in Munich, Bavaria. Vol. XV., "Diseases of the Kidney;" and Vol. XVI., "Diseases of the Locomotive Apparatus, and General Anomalies of Nutrition." New York: William Wood & Company, 27 Great Jones street. 1877.

The American Publishers of this great work are fast approaching a successful conclusion to their very expensive and responsible undertaking to give it to the medical profession of this country in our own language. But to achieve this result, it has been found necessary to increase the number of volumes to 17 instead of 15, as first designed.

The first-mentioned of the two volumes just issued, comprises the most exhaustive of all recent treatises upon the class of diseases its title includes. The subjects are treated practically as well as thoroughly. To illustrate this statement, we quote from page 25 the rules relating to the conduct of the physician, in acquainting himself with the patient's condition who is entrusted to his care.

"What, however, we may and must ask of the doctor who has care of the patient, is:

"1. That he should be in a position to furnish an estimate of the quantity of the urinary constituents of greatest importance.

"2. That he shall have satisfied himself of the quantity of urine secreted in each twenty-four hours, by carefully collecting and measuring it.

"3. That he take the specific gravity of the urine repeatedly.

"4. That he institute a quantitative chemical analysis of the urine, so frequently as he observes any notable alteration in the quantity or specific gravity of this secretion. Unless such care is taken, it is impossible to follow the malady in its progress, or give even a guess at its issue."

We especially commend to the attention of the readers of this volume, Professor Bartel's remarks upon the "Doctrine of Albuminuria." Under this caption, the appearance of albumen in the urine because of some pathological state outside of the renal apparatus, is touched upon. Few subjects of greater interest can occupy the physician's attention.

Some of the most important subjects discussed in vol. xvi. are, "The Rheumatic Affections of the Joints and Muscles;" "Slight Disorders Caused by Catching Cold;" "General Disorders of Nutrition;' "Scrofulosis" and "Diabetes Mellitus."

The Publishers have gotten out these books in the highest style of their art, and the reader is able to felicitate himself that they reach his table in a dress worthy of their great value as professional standards of medicine, both as an abstract science and in its application to its practical purposes.

The books have reached us through the agents for the Southern States, Messrs. McDonald, 116 Carondelet street, New Orleans.

Alcohol as a Food and Medicine. By Ezra M. Hunt, A.M., M.D. Pp. 127. National Temperance Society and Publication House, N. Y. 1877.

This is a paper from the Transactions of the International Medical Congress at Philadelphia, September, 1876. It is the best physiological exposition of the action of alcohol in health and disease that we have. The subject is considered under the following heads:

What is the value of alcohol as a food?

What is its value as a medicine?

How far is it modified by the variable compositions of spirituous liquors, or by unreliability in its manufacture?

It is scarcely possible to read this paper carefully without being driven to the legitimate consequences following from the conclusions, to the conclusion that alcohol has no histogenetic or heat-producing properties, and is unnecessary and injurious to the human body.

Nurse and Patient and Camp Cure. By S. Weir Mitchell, M.D. Pp. 73. Philadelphia: J. B. Lippincott & Co. 1877. J. C. Eyrich, New Orleans.

The name upon the title page will certainly induce many readers to peruse this little vest-pocket book. The author makes some good suggestions in regard to the management of old invalids, and recommends the selection of skilled and paid nurses, to the exclusion of those "tied by love-bonds to the sick." The plan, though plausible, we imagine would seem to a young physician, barring a mother and half a dozen spectacled females from the room of a sick child, rather impracticable. Most probably, for a long time to come, a good part of the "doctor's best function" will continue to be "to put in a constant plea for sanitary wisdom in the nursery," and defend the helpless sick from the kindly interference of relatives and the unwitting meddlesomeness of officious visiting females.

The contents might have been compressed into even a smaller space, but, clothed in the writer's own attractive style, and concluding with the chapter on Camp Cure, a pleasing account of a few of the author's summer rambles, the little book will be alike instructive to the people and interesting to the profession.

A. B. M.

Corpulence: Treated without Starvation, or, How to Get Lean. By M. M. Griffith, M.D., Parsons, Luzerne county, Pennsylvania. Second Edition. E. B. Yordy, Wilkes-Barre, Pa. Price 50 cents.

This little pamphlet, with its complete resumé of all that is known, old or new, on this subject, supplies a demand which has long been felt by the afflicted, as well as the profession. Written

in a simple style, free from unnecessary technicalities, it is equally as intelligent to the one as the other. It offers a boon to the unwieldy or uncomfortably ponderous without the imposition of impossible self-abnegation. The bill of fare for each meal, founded upon the physiological destination of foods in the economy, is sufficiently sumptuous to meet the taste even of the gourmand.

In addition to the Banting system, or the selection of foods non-fattening in their character, the author advocates the use of the Fucus Vesiculiosus, *sea-weed*, or *bladder-wrack*, belonging to the Cryptogamia Algæ in the sexual system, and to the natural order of the Algaceæ. It is diuretic and tonic in its action—it may be used in pills, decoction, or fluid extract form. The testimony of Mr. Duchesne Duparc is added to that of the author as to its efficacy. Should further trial—and we have no doubt that there are many ready and anxious to put it to its fullest test—confirm the results of the investigations thus far made, we know of many little elephants who would move the erection of a monument to the lucky discoverer.

Medical Reform. By David Hunt, M.D. A. Williams & Co., Boston. Wm. Wood & Co., New York. 1877.

We have perused this little work carefully, and can't say that the perusal has resulted in much pleasure or profit. It is a disjointed pot-pourri of general reading, with an occasional outcropping of deep-seated prejudice and spleen, and an incidental reference to medical reform. Throughout its entire pages we find no suggestions on that fruitful and instructive topic, Reform in Medical Education, save the following: "That the schools should arrange a series of lectures upon Medical History, in which the evolution of medical doctrines should be carefully and critically described; that practical courses should be established in the specialties, and also in embriology as a basis of histological study; that the relation of the philosophy of medical history to the work of original research be carefully pointed out; that it should be demonstrated to the students that culture in the former would enable them to appreciate more exactly the lines of advance in the latter."

These suggestions are absurd. We can't see how a course upon medical history would advance the medical student.

The branch is too simple to require any special illustration or application on the part of a professor. A thorough knowledge of general medicine is an essential pre-requisite to the intelligent pursuit and practice of any specialty, and the student is incapable of following his specialty instructor until he has acquired this general qualification. Most colleges have an instructor upon diseases of the eye and ear, two of the most important and delicate organs of the body, from whom the student with the above qualifications can receive complete didactic and clinical instruction. We believe that if the fundamental and concomitant branches of medicine were thoroughly grounded into the student, so that they were his, capable of easy application to the cases in every-day practice, much more will have been done to promote reform in medical education than all the above chimerical and impracticable suggestions. The printer has creditably performed his task.

EDITORIAL.

State Laws affecting Practitioners of Medicine.

In one of the counties of Texas, a judge recently charged the grand jury to make special investigation in regard to the establishment and practice of quack doctors in their district. His honor had reference, of course, to violations of a most excellent statutory enactment of our sister State, which compels those who undertake the practice of medicine in that State, to furnish satisfactory proofs of competency to execute their undertaking. These proofs rest either, in the exhibition of a diploma from the faculty of a medical school whose curriculum of study and strict examinations are accepted as vouchers of proficiency, or, upon a successful examination passed before a Board of Examiners authorized to furnish legal authority to practice. However sincere, or earnest the intentions of the judge may have been to protect his fellow-citizens from the ravages of medical quackery, he had no authority beyond the strict purview of the law.

While it must be admitted that human laws cannot be framed

and executed in so perfect a manner as to extinguish that trifling with human life which is referred to under the name of quackery, it is still a great gain to place that degree of legal restriction upon it which enables a judge to charge a grand jury to look after its existence, and arrest the mischief it is doing.

Every enlightened State or community should possess a suitably constructed law, and proper appliances for its stringent execution, which define the testimonials of qualification, to be handed over to public custody before the practitioner of medicine, surgery or obstetrics, shall be invested with legal authority to pursue his awfully responsible calling. Whosoever attempts the practice of any branch of medicine in violation thereof, should be subjected to suitable penalties, except in cases of justifiable emergency.

The amount and character of the quack practice constantly occurring in this city, are sources of enduring mortification to every educated physician to whom the facts are patent. And who among us is not brought in daily contact with some patient, or circumstances, verifying the truth of this statement? How many dispensing druggists are there in this city who habitually prescribe over their counters to patients, without much knowledge of, or consideration for their diseases, provided only that they are able to walk to their dispensaries? How many of them have nostrums patented, or otherwise, which they permit, if they do not persuade, all persons to take, who have money wherewith to pay, and weakness whereupon to be duped? At the present time the writer has under charge a poor mechanic—the head and support of a large and helpless family—who is moribund from choleraic disease, brought on, as he alleges, from dosing himself with a rheumatic cure manufactured and sold by a druggist of this city.

Nor is this horrible penchant to sport with weapons of whose purposes and proper modes of use the most utter ignorance exists, confined to druggists alone. Our worthy brethren of the gold foil and tooth-nipper persuasion, sometimes rush in where people slightly more angelic in their nature and practice, would fear to tread. Within the past few months, a young person consulted a dentist in this city in regard to some operation upon his teeth. Observing an eruption upon the skin of the young gentleman, the dentist gave him a prescription for a

medicine, which he assured his patient would work a cure after a single dose. This, failing to accomplish a cure as promised, the dentist excused himself by telling the young man that his blood was a mass of liquid poison, and must at once be taken away. Frightened into this belief, the poor fellow permitted the tooth doctor to attempt blood-letting. After many efforts to manipulate an instrument, with the use of which it is to be hoped he will never grow more familiar, more than twenty ounces of blood were taken from a healthy young man—suffering from no ailment, except a totally innocuous eruption, either acne, or slight pustular eczema.

It is written of the great Napoleon, that in one of his conversations he described a degree of idiotcy which prompted the poor demented subject to decapitate a wayfarer whom he saw asleep by the roadside, in order that he might witness the astonishment of the body when it awoke and found the head missing. African travellers tell us of a great monarch in that popular country, who tested the qualities of a rifle presented to him by a pious humanitarian, by killing one of his wives.

Idiots with tendencies like the one referred to, should be placed in asylums where they could not indulge in such whimsical researches after knowledge; African chiefs of similar proclivities should be given over to the most approved negrophilists for correction; and all gay and festive druggists, dentists, and quacks, of every hue and calibre, should be subjected to serious penalties as often as they engage in their dangerous amusements of assaults upon the lives of their fellow-citizens.

Will not our legislative Solons, at their next convocation, consider the injuries to health and life inflicted upon this community by the unrestricted quackery in our midst? Will they not also empower the Board of Health to demand, for their own inspection, and for deposit in their archives, sworn copies of all secret medicines offered for sale in this State? This is quite as important a sanitary measure as the inspection of inflammable oils. It is also most earnestly to be hoped that the day is near at hand, when Congress will refuse to issue patents to preparations either of foods, drinks, or medicines, without an appended provision, that the precise formulæ shall be subject to the order of all State, County, or City Boards of Health, throughout the United States.

Dr. Schmidt's Lectures.

Dr. H. D. Schmidt, Pathologist of the Charity Hospital, will deliver, in the amphitheatre of that institution, a course of lectures on "*The Nervous System, its Minute Anatomy, its Functions and their Mode of Operation, and its General Pathology.*"

These lectures will be illustrated by appropriate diagrams and natural preparations; and to a great extent will be based upon the results of the lecturer's own original studies on the subject. He will deliver one lecture a week, to commence on Friday, November 16th, at 7 o'clock p. m.

The microscopical preparations, illustrating the subject-matter of each lecture, will be on exhibition at some convenient room to be fixed on hereafter, every day succeeding the lecture, from 10 to 12 o'clock a. m., and demonstrated by Dr. Schmidt.

We especially commend these lectures to the notice of our readers. For a number of years Dr. Schmidt has been a most earnest and successful investigator of the Anatomy, both gross and microscopical, and the physiology and pathology of the nervous system. His drawings of microscopical observations are not excelled, either in Europe or this country, and his knowledge of the physiology and pathology of the nervous system, will afford physicians an unusual opportunity to freshen up upon these complex subjects.

Contributions to our Pages.

When this JOURNAL determined upon a change to a monthly issue, it was announced to our patrons and readers that original contributions would be required to be shorter than before, and as far as possible, entirely practical in character. We are not unmindful of this pledge to our readers. It occurred, however, that several long papers were in hand at the time the change was made, and our obligations to print them were binding. We are measurably released for the future, and ask of our contributors that no monograph shall exceed twenty pages. If papers are sent us reaching or passing this limit, we shall ask the right to publish them in two or more parts, and to reserve them until some occasion when scarcity of original matter gives us ample space for long papers.

METEOROLOGICAL AND MORTALITY REPORTS.

Meteorological Report for New Orleans—September.

Day of Month.	Temperature.			Mean Barometer Daily.	Relative Humidity—Daily.	Rain fall—inches
	Maximum.	Minimum.	Range.			
1	92	78	14	30.127	68.00	.45
2	89	77	11	30.091	71.66	.02
3	86	76	10	30.118	80.66	.58
4	87	76	11	30.080	82.00	.06
5	88	73	15	30.139	83.66	1.45
6	86	77.5	8.5	30.616	87.00	.53
7	89	76	13	30.135	74.33	.06
8	89	76	13	30 106	73.66	.00
9	91	74	14	30.065	72.00	.00
10	84	71	10	30.022	78.66	.08
11	86	76	15	30.045	72.00	.00
12	88	76	12	30.132	79 66	1.11
13	88	77	11	30.118	71.66	.00
14	89	77	12	30.048	76.66	.00
15	89	75	14	30.033	73.00	.00
16	88	79	9	30.046	81.33	.04
17	86	79	7	29.862	77.00	.50
18	81	69	12	29.596	90.33	7.22
19	71	64	7	29.257	77.66	1.26
20	71	63	8	29.912	70.33	.01
21	80	66	14	30.017	58.00	.00
22	80	68	12	30.066	68.33	.00
23	76	70	6	30.140	75.66	.00
24	79	70	9	30.140	78.33	.03
25	83	71	12	30.093	79.33	.02
26	84	71	13	30.036	73.33	.00
27	86	72	14	30.011	66 66	.00
28	85	73	12	30.067	68.00	.00
29	84	73	11	30.041	74.33	.00
30	83	73	10	29.963	58.00	.00
Mean..	84.6	73.25	11.5	30.037	74.8	Total. 13.41

Mortality in New Orleans from September 24th, 1877, to October 20th, 1877, inclusive.

Week Ending	Yellow Fever.	Malarial Fevers.	Consumption.	Small-Pox,	Pneumonia.	Total Mortality.
Sept. 30.....	0	18	22	2	2	113
Oct. 7.....	0	12	15	2	2	91
Oct. 14.....	0	6	14	4	3	91
Oct. 20.....	0	15	16	4	3	112
Totals.....	0	45	67	12	10	407

THE

NEW ORLEANS

MEDICAL AND SURGICAL JOURNAL.

DECEMBER, 1877.

ORIGINAL COMMUNICATIONS.

NOTES ON THE HISTORY OF DISINFECTION AND DISINFECTANTS.

BY JOSEPH JONES, M.D.,

Professor of Chemistry and Clinical Medicine, Medical Department University of Louisiana, New Orleans; Member of Board of Health, State of Louisiana.

Continued from November No.

No. II.

DISINFECTANT ACTION OF SULPHUROUS ANHYDRIDE AND SULPHUROUS ACID.

As described by Prof. Ernst Hallier, of Jena, this cholera fungus cell growth is a penicillium bearing one, which is known to be a native of India only, and as having the following peculiarities:

1. As shown in all his experiments, its life power of further propagation or growth is instantly destroyed by an acid condition of the fluid or soil in which their growth was being observed.

2. The presence of an abundance of nitrogenous matter, and the absence of acids, in the soil, the substance or the fluid in which the propagation and development of the cholera fungus was being observed experimentally, was proved to be an essential condition for such propagation and growth.

3. When the fungus cells, in the course of their development upon a piece of intestinal membrane (in a bottle), reaches a cer-

tain stage, they rapidly increased, and the epithelium as rapidly wasted away.

It is evident, therefore, that the investigations of 1865 and 1866, and the sanitary measures instituted in Europe and America, constituted a new and important era in sanitary and medical science; and in the latter country the first and greatest advances were made by the Board of Health of New York, and especially by its Registrar of Vital Statistics, Dr. Elisha Harris.

In the *Gardener's Chronicle*, Nov. 9th, 1867, a description is given by the Hon. W. Hope, of experiments made on diseased cattle at his farm near Barking. He says: "I thought that while there was life there was hope, and I determined to do more than any one had done before. Where one man had used a hundred weight of lime I determined to use a ton, and where one man had used a pint of carbolic acid I determined to use a gallon. * * The dry substance I had at hand to deal with in large quantities was lime. This I slaked in small pyramids in the centre of the sheds. I also laid trains of it outside the sheds, and underneath the ventilators, and then slaked it. I also smothered the roads and paths at different points in layers of quicklime, three or four inches deep, so that every man and animal would be compelled to pass it. After scouring out the sheds, every cow's tail was dipped into a bucket of carbolic acid and water. Their heads and noses were dashed over with it, also their sides and flanks. All the manure and litter from the cow's stall, as well as the adjoining ones, was taken out at once, and the floor thoroughly cleaned and saturated with carbolic acid; and, on the suggestion of Professor Brown, I had four days previously commenced the use of sawdust saturated with carbolic acid, one or two shovelsful of which were placed every day under the cow's head. This operation was also repeated in each stall, and the cows were then drenched with gruel and sulphite of soda. Of the 58 cows in shed D, and 53 in shed E, that I took the entire charge of and treated as described, I did not lose one."

The rinderpest having broken out in a herd of upwards of 260 cows in its virulent form, Mr. Hope undertook the treatment of one-half the number by the carbolic acid plan "The result was," says Mr. Hope, "that while every single animal that I did not take charge of either died or was slaughtered. I succeeded in saving every single animal that I did take charge of."*

* Chemical News, October 21st, 1870, p, 196.

Dr. Edmund A. Parkes* has expressed his conviction that carbolic acid deserves the foremost place as a means of limiting the spread of infectious diseases. Dr. Parkes inhaled, for the purpose of testing their morbid effects, the exhalations from sewers. The first effects were a nasal catarrh, and an irritation of the mucous membrane of the throat; hyper-salivation followed, and subsequently, after an interval of 30 to 50 minutes, nausea. In a few hours occurred chilliness, headache, and fever, lasting from 20 to 24 hours. None of these effects were observed when the sewage matters had been previously treated with a sufficiency of carbolic acid.

Dr. Wm. Budd, of Bristol, has stated that, by the employment of disinfectant agents "the contagion of scarlet fever, of hooping cough, of diphtheria, and many others of the same family, may be in great degree if not wholly disarmed." There is also, he says, every reason to believe that the contagion of typhus may be thus limited.

We have thus brought the history of disinfectants down to the period in which they were first used systematically for the arrest of yellow fever, by Dr. S. A. Smith, President of the Board of health of New Orleans, during the yellow fever epidemic of 1867, in which 3107 inhabitants of this city fell victims to this disease.

The results of the efforts to limit and control yellow fever by means of sanitary measures, and certain disinfectants, as carbolic acid and sulphurous acid, will receive careful consideration in the division of our researches especially devoted to this subject.

We will endeavor to examine, in the next place, those facts which illustrate the value of carbolic acid as a disinfectant.

Chemical Properties and Relations of Carbolic Acid.

Phenic or carbolic acid. phenyl hydrate, phenol ($C_6 H_6 O$ or $H C_6 H_5 O$), the most abundant acid product of the distillation of pit-coal, and produced also by the distillation of the salicylates of the alkalies, and of the earths, and found also amongst the products of the distillation of gum benzoin, and of the resin of the *Xanthorrhœa Hastalis*, is classed under the secondary aromatic alcohols, and in this connection is termed phenol; and whilst giving no reaction to test paper, forms with bases distinct

* Lancet, November 31st, 1868.

and definite salts. The crystals of phenic acid melt at a temperature of about 105.8° (41° C.), and the liquid enters into ebullition between 369° and 370° F.

Phenic acid requires 25 to 30 parts of water for solution, but is dissolved by alcohol, ether, and concentrated acetic acid in all proportions. When agitated with a solution of caustic potash of sp. gr. 1060, the carbolic acid mixes more fully with the alkaline lye, but a large portion of the acid separates on dilution.

Phenic acid has a burning taste, and an odor of wood smoke resembling that of kreasote. Its vapor strongly attacks the skin of the lips and gums. Phenic acid possesses antiseptic properties similar to those of kreasote; indeed, much of the commercial kreasote consists solely of phenic acid.

Phenic acid, when heated with ammonia in a sealed tube, becomes partially converted into water and aniline. The acid combines with potash, and forms with it a crystalline compound; though it may be distilled unchanged from caustic potash, or from quick-lime, or caustic baryta in excess. Phenates of these bases may be obtained, but they are easily decomposed; with oxide of lead an insoluble compound may be obtained. Phenic acid combines with sulphuric acid, with which it forms a colligated acid.

Phenic acid is accompanied in coal tar by other homologous bodies which greatly resemble it. By subjecting commercial coal tar kreasote to fractional distillation, Williamson obtained a liquid which boils at 397.4° F., and which is nearly insoluble in solution of ammonia.

Kresylic acid, *kresol*, or methyl-phenol, is soluble in oil of vitriol, producing a violet color and forming a compound acid. This substance is metameric with anisol, and with benzyl alcohol; it is the phenol of the toluic series. When treated with fuming nitric acid, it is oxidyzed with almost explosive violence, and a *trinitro-kresylic acid*, homologous with carbazotic acid, is produced. A third homologue, Xylyl phenol, also occurs in coal tar in small proportions. It is probably dymethyl-phenol, but it has not been accurately investigated. Isomeric with this body is *phlorol*, obtained by distilling calcic phloretate with lime. It is a colorless, highly refractive oil, with a burning taste, and an odor recalling that of carbolic acid. Thymol, also, according to Kekulé, is a homologue of carbolic acid; but this appears to be doubtful.

Phenic acid may be caused to furnish ethers with alcohol radicles by a process of double decomposition, which consists in distilling potassic methylsulphate, ethylsulphate, or anlylsulphate with potassic phenate. These ethers may likewise be procured by treating potassic phenate with the iodide of methyl, of ethyl, or of amyl; they are also produced by the distillation of the salicylic ethers with caustic baryta.

Phenic acid gives rise by substitution to an unusual number of acid compounds, formed upon the type of phenic acid itself.

All these acids are monobasic, and form definite salts, many of which crystallize very beautifully.

A mixture of potassic chlorate and hydrochloric acid converts phenic acid into trichloro-phenic acid, and by prolonged action chloranil is produced.

Oil of vitriol dissolves phenic acid, without change of color, and produces a compound monobasic acid termed *sulpho-phenic acid;* it forms with barium a soluble salt, which crystallizes in tufts of needles.

If phenic acid be allowed to fall, drop by drop, into fuming nitric acid, it is attacked with great violence, each drop producing a hissing like that which accompanies the quenching of a hot iron; and upon boiling the mixture, carbazotic (*trinitro-phenic*) acid is obtained. If the acid be more dilute, *nitro-phenic acid*, or *dinitro-phenic* acid is produced. Both these acids may readily be obtained in crystals; most of their salts crystallize with facility; they greatly resemble the carbazotates.

Antiseptic Action of Carbolic Acid on Vegetable and Animal Substances. Poisonous Effects of Carbolic Acid.

The aqueous solution of carbolic acid coagulates albumen; it unites with certain animal substances and preserves them from decomposition, even removing the actual odor from meat and other substances already in a state of decomposition.

Fish and leeches die when immersed in the aqueous solution, and their bodies subsequently dry up on exposure to the air, without putrefying.*

M. Méhu* and Dr. Meymott Tidy have recommended carbolic

* Journal de Pharmacie et de Clinic, February, 1869.

acid dissolved in acetic acid as a delicate test for albumen in the urine; the process, however, does not appear to be more delicate or as reliable as the long-established tests of nitric acid and heat.

We have seen that carbolic acid enters into union with inorganic bases, forming definite compounds, and that it may be readily displaced from its combinations. M. Roméi* considers the compounds mérely juxtapositions of the molecules, each constituent preserving unchanged its inherent character.

It is important to know whether in the case of the organic bodies with which the agent may come in contact, it may form compounds which may modify its original properties.

This question has been carefully considered by Dr. Ernest Sansom, in his elaborate and valuable treatise on "The Antiseptic System," p. 17.

Whilst it is observed to have an affinity for albumen, Dr. Sansom has shown that the presence of this substance or of potash in small quantities does not impair its power of arresting fermentation.

Dr. Sansom has shown, that a mixture of glycerine and carbolic acid acts upon the sensitive surface of the skin in a far less energetic manner than the aqueous solution; the presence of glycerine impairs in a very obvious manner the power to arrest saccharine fermentation. Carbolic acid appears to unite chemically with glycerine; in like manner, when diluted with olive oil, the energy of its action on the skin is diminished, and its power of arresting fermentation and putrefaction is impaired. A five per cent. solution of carbolic acid in olive oil fails to prevent the putrefaction of flesh, though a one per cent. watery solution will entirely prevent such decomposition. It appears, therefore, to enter into combination with fatty matters. Alcohol also lessens its power over fermentation.

Dr. Sansom concludes that these considerations are sufficient to show that carbolic acid readily enters into combination with the organic bodies with which it comes into relation, and that these are prone to mutual variations, and that then the original properties of the agent become modified.

The chief value of carbolic acid and the compounds associated with it, is its property of destroying vegetable and animal organ-

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* Bulletin de la Societe Chemique, February, 1869.

isms, and its antiseptic property of preventing fermentation and putrefaction.

Carbolic acid not only prevents fermentation, but it also arrests it when it has once commenced; although, on the other hand, it does not prevent the conversion of starch into dextrine, or the formation of the essential oil of almonds when amygdalin is mixed with synaptase.

Dr. Sansom has shown that the following quantities of various agents will wholly arrest the fermentation of 25 grains of cane sugar: perchloride of mercury, grain 0.03; hydrated sulphuric acid, grain 0.10; carbolic acid, grains 2.00; perchloride of iron, grains 3.90; carbonate of potash, grains 4.00; sulphate of soda, grains 5.00; sulpho carbolate of soda, grains 20.00.

Mr. Crookes, in his Report to the Cattle Plague Commissioners, related an experiment which tended to show that the action of carbolic acid in restraining fermentation was directed to the *yeast*, and that the power of yeast to induce fermentation was wholly destroyed by feeble solutions of carbolic acid. Mr. Crookes washed yeast with a one per cent. aqueous solution of carbolic acid, and then washed away with water, as far as possible, the carbolic acid. The experiment, several times repeated, always showed that the power of exciting fermentation was wholly destroyed. This conclusion, however, was contested by Pettenkofer, who says that though carbolic acid preserves ferment cells in an inert state, yet when the volatile acid has become dissipated these resume their activity.

Dr. Sansom, who submitted this question to experimental demonstration, concludes that, "Without, as yet, hazarding any hypothesis as to the nature of fermentation, the data show that the yeast is the element which is acted upon, and there is no sign that this is *chemically* altered."

The action upon the yeast would appear to be not temporary, but permanent. Dr. Robert Angus Smith* remarks, upon the same subject, that his experience led him to believe that Pettenkofer must have used very weak acid.

Abundant experimentation has proved that carbolic acid prevents the putrefaction of organic substances; that in small quantities it prevents the germination of the spores of the yeast plant, and various others, such as lentils, kidney beans, barley

* Disinfectants and Disinfection, p. 63.

and oats; that an infinitesimal quantity instantly kills *bacteria*, *bibous*, spirilla, ainochæ, menads, engliniæ paramecia, rotifera, and buticellæ; that it destroys ascrides, the ova of ants, earwigs and butterflies; that it kills tumbrici, catterpillars, beetles, crickets, fleas, moths, fish, frogs, leeches, birds and animals.

The multitude of observations which have been made, and the experience of every day, leave no room to doubt that carbolic acid has a great power in arresting both fermentation and putrefaction; and at the same accumulated observations by Crookes, Smith, John Donegal, Sansom and others, show that it does not exert any appreciable influence on oxidation. Oxidation of potassium, sodium, iron, copper, lead, manganese and phosphorus, have been observed to take place as readily in aerial or aqueous atmospheres impregnated with carbolic acid, as in cases where the latter is entirely absent.

That carbolic acid has an action, over and above its faculty of coagulating albumen, and does not prevent or arrest fermentation or putrefaction solely in virtue of its power of coagulating albumen, is shown conclusively by the fact that, if a solution of albumen be precipitated in one case by heat or by an ordinary chemical agent, and in the other by a solution of carbolic acid, the resultant precipitate, if kept in contact with the air, will in the first case be decomposed in the ordinary manner, whilst that precipitated by the carbolic acid entirely resists putrefactive change.

We conclude from the preceding facts, that carbolic acid does not operate in any way obviously chemical, but that it has a manifest effect upon vitality, and that it has the power of killing in feeble doses and in a marked manner the lower manifestations of animal and vegetable life, which are intimately associated with the processes of fermentation and putrefaction.

When carbolic acid is added to a solution susceptible of putrefaction, and before the commencement of any putrefactive decomposition, no organisms are developed; and when added to a putrefying solution, all the infusoria present in that solution instantly die, and the cessation of putrefactive change is coincident with their death. There is therefore a direct connection between the manifestations of living things and the occurrence and progress of putrefaction, and it is in virtue of its power of suppressing vitality that carbolic acid acts as an antiseptic.

It would be foreign to our purpose to examine the testimony

accumulated from the time of the experiments of Redi, in Florence, in 1638, to the present moment, including the observations of Needham, Bennet, Spallanzani, Lamarik, Cabanis, Bory St. Vincent, Bremser, Tiedemann, J. Muller, Dumas, Dujardin, Burdoch, Gay-Lussac, Schwann, Schröder; Dusch, Pouchot, and Pasteur, Hallier of Jena, Bastian and others, which have led to the establishment of the two rival theories of the Heterogenists and Panspermatists, with regard to putrefaction.

According to the Heterogenists, "Putrefaction is a chemical change, which most organic matter is prone to undergo under certain influences. It is a slow process of oxidation. Its *primum movens* is an albuminous body (the putrescible material itself), whose particles are in a condition of motion, which motion it is capable of communicating by catalysis to contiguous organic matter. The initial changes are chemical changes; these chemical changes place the organic matter in such conditions as favor its transformation under ordinary physical forces into organisms possessing vitality. Hence there arise *de novo* from the dead material; their occurrence is non-essential to the process. Either they are entirely adventitious, or they are only intermediary means of transformation."

According to the opposing theory, held by the Panspermatists, "Putrefaction is a transformation of organic matter, entirely effected by the influence of vitally-endowed organism. The chemical changes in putrefaction are the sum of the products and the acts of living beings. The first cause is a multitude of minute particles of vitally-endowed matter derived from pre-existing living beings, contained in the air, permeating all substances which air itself permeates, wafted from place to place, finding in the putrescible fluid a suitable soil or pabulum, in which in various forms to live, grow and multiply. The universally-present living particles are essential to the process of putrefaction, and when they are destroyed putrefaction cannot take place."

The force of the evidence, with reference to carbolic acid, sustains the theory of fermentation and putrefaction of the *Panspermatists*, and it owes its antiseptic power to its poisonous effects upon those organisms which are so uniformly distributed upon the surface of the earth, and throughout the atmosphere, upon which the process of fermentation and putrefaction depend.

When we endeavor to apply the preceding facts to the explanation of the mode in which certain chemical compounds, as *sulphurous acid, chlorine*, and *carbolic acid*, arrest contagious and infectious diseases, the following facts should be considered:

1st. All disinfectants and antiseptics possess the power of arresting fermentation and putrefaction, and consequently alter the chemical and physical constitution and properties, or *embalm and preserve from farther* change, organic substances.

2d. All disinfectants and antiseptics are destructive of those forms of plants and animals upon which fermentation and putrefaction depend.

3d. Carbolic acid especially arrests the chemical changes of *germinal matter*, and of individual cells, and of the lower organisms: *it is destructive of life.*

4th. Diseases may be caused by chemical and physical changes of the atmosphere; by the presence of certain gases, some of which may be evolved from the bowels of the earth, and others from decomposition and putrefaction of vegetable and animal matters upon the surface of the earth; by alternations of heat and cold and moisture; by variations in the amount and mode of action of the terrestrial electricity; by changes of diet, habits of life and occupation; by foul gases, volatile animal matters, and putrefying secretions and excretions, resulting from crowding in ill-ventilated and filthy ships, camps, hospitals and houses; by tangible organic poisons propagated in and through the human system, as of syphilis and small-pox; to vegetable or animal matters, or living germs, which may assume new forms and develope new products in accordance with the soil in which they are grown, extremely minute living organisms, having the characteristic endowments of vegetable growths, analogous to the minute particles of vegetable protoplasm, whose function it is to disintegrate and convert complex organic products, owing their specific properties in special diseases, not to any botanical character, but to the characters implanted in them from the soil in which they sprang from innocuous parents, and from which they are transmitted, and this soil, except in the case of their earliest origin, being the fluids of the animal body; by minute living organisms, fungi and animalculæ, possessing inherent poisonous properties, and capable of inducing specific diseases, according to their species and genera, being dependent for their existence

and propagation upon special climatic conditions, and special conditions of heat, moisture, and animal and vegetable matters.

5th. The ancient belief that decomposing animal and vegetable substances produce disease, and are ultimately connected with contagion and infection, has been revived in modern times, and it might be said, that up to the middle of the present century, this crude and gross result of sanitary investigation summed up all that had been done by boards of health and sanitary commissions.

While the decomposition of organized beings after death, and of organic matters generally, both vegetable and animal, may produce gases and vapors that are injurious to health, and which may favor the spread of certain diseases, as cholera, plague, and yellow fever, they are incapable of *originating* these diseases. Whilst it is difficult to determine the place and origin of these diseases in the warm climates where they appear to be indigenous, when imported into more temperate latitudes they prevail with most destructive effects in crowded and filthy localities and habitations, where decomposing animal and vegetable matters pollute the air. The fostering effect of decomposing organic matter over disease has been likened to the rapid growth of seeds planted in the rich, fertile soil of decomposing matter, or to the action of the yeast plant, "as if the putrid matter itself took the disease and transformed it to the living."

6th. When the effort is made to determine the nature of the substance which forms the seed or germ of the disease, not merely the decomposing substance but the resulting gases, and the various organisms existing in the air and water and on the surface of the earth, demand investigation. If the labors of chemists, who have examined the gaseous compounds resulting from the decomposition of organic substances, such as sulphuretted hydrogen, sulphuret of ammonium, carbonic acid, nitrogen, carburetted hydrogen, phosphuretted hydrogen, ammonia, acetic acid, and alcohol, are carefully examined, it will be found that, whilst it has been established that certain of these gases, as sulphuretted hydrogen, are destructive of life when concentrated, no combination of these gases in the laboratory and in experiments has ever produced a *contagious*, *infectious*, or *specific* disease. Whilst these gases, which are easily diffused into the air, and are more or less soluble in water, are in certain propor-

tions injurious to human beings, their action, even in the most rapid decomposition on the surface of the earth, are wholly different from those of the organic contagious matters; and in like manner we must conceive that their action is different from those vapors in which may be concentrated the organic impurities of the atmosphere, or of putrid decomposing substances and organized bodies, animalculæ, fungi, etc., mechanically suspended in the atmosphere.

7th. However disease may be produced, by specific organized germs, or contagious combinations of germinal organic matter, originally developed in the human constitution, and propagated through succeeding generations, or by well known gases, as sulphuretted hydrogen, phosphuretted hydrogen, carburetted hydrogen, or hydrocyanic acid, easily diffused in the air, or by heavy vapors, inclosing the products of the decomposition of marshes, or by putrid decomposing substances, mechanically diffused, or by organized living bodies, acting as ferments, or as carriers of the contagious putrid matter: *the true remedy is disinfection*, chemical alteration of the poisonous matters, arrest of all life actions, arrest of all fermentation and putrefaction.

By means of such agents as chlorine and sulphurous acid we destroy sulphuretted hydrogen, sulphuret of ammonia, phosphuretted hydrogen, hydrocyanic acid, and the various combinations of hydrogen and carbon, and alter the constitution of those organic substances, whether living or dead, which are supposed to induce disease; and in like manner, carbolic acid destroys living germs, arrests fermentation and putrefaction, and thus embalms the active agents in the propagation of contagious diseases.

8th. A thorough system of disinfection should embrace—

(*a*) The immediate isolation and disinfection of the *first* case or cases of any contagious disease.

(*b*) Free ventilation and absolute cleanliness.

(*c*) The disinfection of surrounding streets and houses, by means of lime, sulphurous acid, and carbolic acid.

(*d*) Thorough cleansing and disinfecting of the bedding, clothes, rooms and premises, of the various outbreaks of yellow fever, cholera, and other zymotic diseases, by means of such agents as chlorine, sulphurous acid, permanganate of potash, and carbolic acid.

INJURIES OF THE HEAD.

BY SAMUEL LOGAN, M.D.

(Read before the N. O. Medical and Surgical Association, June, 1877.)

Continued from November No.

No. III.

Injuries of the Brain and Membranes.

These may occur with or without injury of the soft parts or of the bone.

Even extensive and fatal lacerations of the cerebral substance may be found—as the result of falls more particularly—with no appreciable injury of the soft parts or of the bone.

I made a post mortem in 1859, in Charleston, S. C., in the case of a healthy-looking mulatto man, aged about 30, who, while in a state of intoxication, was pushed off by the open hand of a friend, whom he was annoying, and fell to the floor. He was carried home by his friends, who had no idea the fall had injured him, supposing that he was only drunk. As he could not be aroused the next morning, I was sent for. Before I reached him convulsions had supervened, and I found him dying. Declining to give a certificate of death, the coroner was summoned, and I had the opportunity of making a post mortem.

The only injury I could find was a laceration, about one and a half inches long and half an inch deep, involving the anterior margin of the middle lobe of the left hemisphere, where it borders the fissure of Silvius. A considerable hemorrhage had occurred, which had settled down towards the base of the brain, and had been the evident cause of the rapid death.

Injuries of the membranes need hardly be considered separately from injuries of the brain. It is often impossible, before death, to ascertain whether any or all of the membranes are affected, and the results in the end are almost the same as when the brain is injured. We will therefore consider them under a common head.

Injuries of the encephalon, then, may be considered under the three heads of—(*a*) Contusions, (*b*) Wounds, and (*c*) Compression, the last often, but not always, resulting from one or the other of the two first.

(*a*) *Contusion of the brain*, or as it is more frequently designated, *concussion* of the brain, is identical with contusion in other parts.

If my definition of contusion in general, as announced in a former portion of this paper, be borne in mind, the views I would support as to the pathology of the condition ordinarily called *concussion* will be readily understood. I defined a contusion to be a solution of continuity involving, to a greater or less degree, the finer anatomical elements of a part only; or in other words, a kind of partial wound if it occur in the soft parts, a variety of partial fracture if it occur in bone.

In concussion of the brain, such, I contend, is the condition present—at least, such is the only pathological condition which has yet been demonstrated.

While nature has done her utmost to prevent external forces from acting harshly on this great nerve centre, as explained in the preliminary remarks on the surgical anatomy of the head, nevertheless, the extreme delicacy of the nerve cells and the nerve fibres, the tenuity of the blood-vessels permeating the gelatinous mass, and the necessary absence of any connective tissue coat to protect these vessels from rupture—I say necessary absence, because I apprehend so coarse a tissue would exert too much irritative compression on the ultimate nerve fibres—all these conditions, taken together with the great weight of the whole encephalon, unite in the production of various degrees of contusion when the heavy mass is thrown into vibration by sudden or excessive external violence. These vibrations, passing through so heavy a mass composed of such extremely delicate and fragile anatomical elements, necessarily effect a solution of continuity of some of these anatomical elements, though the mass as a whole retain its integrity. Under this view of the traumatic pathology of cerebral "concussion," all the phenomena, varying as they do in degree and character, may be explained, as we will see when discussing the symptoms; and the few post mortems which are recorded in cases where death from other causes has supervened while the patient was suffering under the symptoms of "concussion" have shown minute spots of extravasation, indicating a rupture of some of the smaller vessels. If the force be sufficient to break these tubes, must we not necessarily infer that the still more fragile nerve elements have suffered in like manner? They surely have, and the nerve symp-

toms produced fully confirm this view. Why, then, should we still retain the term "concussion" when the case is one of contusion? Concussion is only the cause, contusion the condition produced by it. The symptoms all refer to the greater or less impairment of cerebral function, in direct proportion, so far as regards degree and duration, with the probable amount of injury inflicted.

Causes. These may be summed up as simply external violence applied in various ways. But we may say that contusion, unaccompanied with other injury, more frequently results from falls on the head and from blows from blunt instruments, clubs, the fists, etc., than from other traumatic agencies.

Symptoms. These, as already mentioned, all refer to impairment, in varying degrees and duration, of the functions of the organ. They may be classed under two heads: those relating to the intellectual, and those relating to the animal functions. Among the first we must place a loss of consciousness. This may be but momentary, or it may last for some hours. During its existence the patient is more or less lost to all surrounding impressions, and when he recovers he recollects little or nothing that has occurred. The period is often a total blank in his existence. Usually this state of unconsciousness is accompanied by loss of the powers of locomotion and other animal functions; but this is not always the case, as I can testify by my personal experience. When the writer was about 17 years of age he was thrown from a horse which had run away, and, falling on his head, he lay on the ground but a few moments, when, with a little assistance, he mounted into a wagon and rode home, about a mile, sitting up and talking, but in a confused manner, all the way. When he reached home he voluntarily went to bed, and apparently soon fell asleep. Three hours afterwards he awoke, much surprised to find himself in bed, and recollecting nothing after he felt himself falling from the horse.

In some cases a certain amount of mental confusion may remain for days, and then gradually disappear; and again, a more or less permanent effect may remain and show itself in marked irritability of temper, inaptitude for business, or impairment of memory—sometimes of a partial character, as of dates, names, etc.

Symptoms referring to impairment of the animal functions are numerous and varied. The muscular system is often partially, and in bad cases totally, paralyzed; the heart action is feeble, as shown by the small pulse and cold skin; the anal and vesical sphincters, partaking of the general muscular paresis, often yield to the pressure of the contents of the rectum and bladder, which thus escape without the volition of the patient. The pupils are apt to be contracted, though sometimes they may be found expanded, and the face presents a death-like pallor. After a period varying from a few moments to some hours, a reaction begins. This is shown by a returning consciousness, an increase in the powers of locomotion, a better coördination of the muscular action, a stronger pulse, and warmer skin. Not unfrequently the commencement of this reaction is marked by emesis, which itself seems to have a favorable effect in arousing the torpid nervous energies and helping to restore the wonted activity.

If the case tend to a fatal termination, however, all the symptoms become aggravated, and death may occur from asthenia, or the symptoms of contusion may gradually give place to those of compression; or still again, the reaction may become excessive, and symptoms of encephalitis, usually of a fatal character, present themselves.

Prognosis. A case of uncomplicated contusion usually but not always recovers; but complicating conditions so often coëxist or supervene, that great caution should be generally observed in announcing a prognosis. If the symptoms be slight and transitory; if no convulsions set in—which, when coming on within two or three days, usually indicate in my experience some brain lacerations; if no signs of compression or of encephalitis develop themselves, and the mental and physical symptoms gradually subside, a favorable prognosis may be ventured—always with the proviso, however, that, especially if the patient be imprudent, dangerous symptoms may in any case supervene, even where he appears to be on the fair road to recovery. We must ever bear in mind that the brain is in a state of contusion; that here, as in contusion elsewhere, we have more or less laceration of tissue with extravasation of blood and effusion of serous fluid. The parts subjected to this injury must be repaired. For this purpose a certain grade of hyper-nutrition—or inflammation, as you

may prefer to call it—must be expected, and this may be aroused into too much action and extend to a great distance, thus establishing a true encephalitis.

Treatment. There is but little indication for treatment in the majority of these cases. If the symptoms be slight, recovery soon takes place, and is best facilitated by simply letting the patient alone.

In the severer cases, the class of diffusible stimulants may at times prove serviceable. These should especially be resorted to should signs of cardiac failing present themselves. In other words, the attendant should carefully watch his patient, and observe the tendency of the case. If this points towards recovery, let him alone; if towards death, then the diffusible stimulants, frictions to the extremity, sinapisms, etc., may be resorted to in our efforts to ward off that tendency. Bearing in mind the danger of subsequent encephalitis after the symptoms of contusion have abated or disappeared, the patient should be kept in absolute repose of mind and body; a brisk cathartic may be administered, and the mildest and blandest diet be prescribed. This treatment should be continued for a time duly proportioned to the severity of the case—say from one to three weeks, or even longer, should any lingering symptoms remain.

WOUNDS OF THE BRAIN.

These, as we have seen, may occur with or without a wound of the bone or soft parts. Were it not for the pressural effects of the hemorrhage, primarily, and the inflammatory effusions and products, secondarily, there is reason to believe that wounds of at least the upper portion of the encephalon would result quite frequently in union and recovery, As it is, the records of surgery afford more than one recovery from quite extensive lacerations. I need hardly mention the case of Dr. Harlow, of Vermont, in which a tamping iron, 3 feet 7 inches long and 1¼ inches thick, passed through the left anterior lobe of the cerebrum, tearing out quite a quantity—estimated as a small teacupful—of brain matter, the man recovering and living 13 years, with no loss of mental faculties. Other almost equally remarkable cases are on record. Wounds in which foreign bodies have lodged have in some rare instances at least temporarily healed up,

though, as a rule, suppurative encephalitis in such cases ultimately carries off the patient.

The following case is as remarkable as any I have read of, and the party himself is in the ante-room, and will be presented to the Association as I read the notes of the case.

I was invited by Dr. J. D. Hunter to see the boy about a week after the receipt of the injury, and I am also indebted to his courtesy for this opportunity of exhibiting the patient for your examination. The following notes of the case have been sent me by Dr. Hunter.

Joseph Marshol, aged 7 years, colored, native of New Orleans, La., was shot in the head on the afternoon of April 4th, and conveyed instantly to the Charity Hospital. As the surgeon in attendance discovered no unusual symptom beyond that arising from an injury to the scalp, he pronounced the wound trivial and sent the boy home. I saw him about three hours after the occurrence. I found him in a semi-comatose state, with complete paralysis of the right side. On inspecting the wound, I discovered that the bullet had entered the frontal bone about an inch above the inner angle of the left eye. Looking upon the wound as mortal, I allowed the probe to drop into the brain of its own weight to a depth of six and a half inches.

I ascertained, from those who were present at time of the shooting, that the boy did not fall instantly but walked quite a distance, and that the coma and paralysis did not take place until some time had elapsed.

The patient remained in this partially comatose condition for three days, with high fever, full frequent pulse, and a temperature of about 104°. The pupils were normal, contracted promptly, with no perceptible difference. I also discovered that the right facial muscles and the right half of the tongue were likewise paralyzed.

Treatment consisted in free purgation, arterial sedatives, and cold lotions to head. A large quantity of bloody serum was discharged from the wound interspersed with particles of brain substance.

On the morning of April 8th I found patient sitting up, with no fever or stupor. He recognized me at once, and was able to indicate his wants by signs. His intellect seemed unimpaired, but he was unable to articulate a word. I now discovered that

there was complete loss of sensation as well as of motion on the right side.

Ordered perfect rest in a horizontal position, quiet, light diet, cold to head, and occasional purgation. Patient progressed favorably.

April 18th. Sat up and ate heartily.

April 22d. Made an effort to walk, and could articulate a few words; wound closed. Henceforth his condition gradually improved.

May 26th. Could walk briskly, and express himself so as to be readily understood, but could not raise his arm or grasp an object.

At present—July 28th—can run, has but slight impediment in his speech; paralysis of facial muscles and tongue still quite obvious, though but partial; has but a very imperfect use of arm—sensation fully restored, except below the lower third of forearm. The parents of child say that he has betrayed no want of his usual intelligence.*

J. D. HUNTER, M.D.

There is but little of practical importance, though much of physiological interest, to be said in relation to wounds of the brain. Their tendency is, of course, towards death, and it is but little that the surgeon can do, outside of appropriate general treatment, that can be expected to lessen the chances of this termination.

Treatment. If practicable, foreign bodies should be removed, provided this can be accomplished without inflicting injury on a still greater area. This proposition embraces, of course, the removal of any bone spicula which may be lodging within reach, or which, indeed, may themselves have been the chief agents by which the wound was inflicted. In gunshot wounds a probe may be gently dropped into the wound, and if the ball or other foreign body be detected, the forceps may be cautiously inserted for its removal; or even the little finger—the surgeon's best probe—may be made to explore the track of the ball in order to locate the foreign body.

All foreign matter being removed when practicable, the wound

* The author of this paper has seen the boy this day, November 10th, 1877. He is strong and well, but still partially paralyzed.

should be otherwise treated on general principles, thorough drainage for all suppurating and other fluids being carefully provided for, and antiseptic appliances being used. The bowels should be freely acted on, and afterwards kept well opened. The patient should be guarded against all excitements; and should febrile symptoms be developed, they should be met by cold to the head, cardiac sedatives, etc., as in any other case of encephalitis.

Should repeated rigors, with or without hectic, come on, suppuration may be inferred, and the question will then sometimes present itself as to the propriety of seeking for the pus.

Some bold, not to say reckless, surgery has been practised in such cases. Nor can we blame the surgeon who dares give his patient the only chance for his life by a little well-timed temerity under such circumstances, when we remember that sometimes startling success has followed in exceptional cases. Dupeytren, Deltmold, Hamilton, Nelaton, and others have recorded cases in which either a permanent or temporary relief from impending death has followed the bold use of the bistoury in such cases. Of course there must be some indication to guide the knife to the probable location of the pus to warrant so desperate a resort. If the skull has been laid open, and the indications point to the accumulation of pus near the seat of injury; if the parts seen at the bottom are swollen and congested, projecting into the wound of the skull; if a hernia cerebri has developed—this frequently being actually caused by suppuration below; and if the symptoms from compression from the supposed abscess are becoming more and more severe, the patient thus surely marching to the grave—then I would certainly advocate the adoption of some means in the first place to find and in the second place to evacuate the pus. Should such a case again present itself to me, and the indications of the whereabouts of the pus were not so palpable as to warrant the immediate use of the knife, I would explore the neighborhood with the aspirator, and finding the pus, I would cut down on it with the knife.

Compression of the Brain.

This form of cerebral injury may be classed under two heads, as it presents itself as an immediate or consecutive result of the injury. In the first class the symptoms develop promptly, and

are the result of displaced bone or of blood pressing on the brain mass, which may or may not be also wounded. In the second class the symptoms come on later, and are due to the pressure of inflammatory effusion, pus, etc.

It must be borne in mind that when we use the term compression of the brain, we do not mean physical pressure itself, but the effect of that pressure in the given case on the functions of the organ. In fact, we may have the one without the other. A considerable portion of bone, for example, may be displaced and press on the brain, and yet no symptom of compression presents itself, especially in the case of children. Or a large abscess may be present in the substance of the brain, displacing it and compressing it on all sides, and yet the brain functions be so little disturbed as to give no symptom of compression.

Symptoms. As may be inferred from what has just been said, the symptoms of compression may present themselves promptly after the receipt of the injury, when they depend on the pressure of displaced bone or some foreign body, or on extravasation of blood from ruptured vessels; while again, they may not come on for days, or even weeks, sometimes months, in which case they depend on inflammatory products of some kind. Whatever the cause or period of development may be, the symptoms all point to a greater or less degree of paralysis of the intellectual and animal functions of the brain similar to, though more persistent than, what is observed in contusion. The patient is almost or totally unconscious, or in other words, there is a paralysis of both the perceptive faculties and of the will. He lies flaccid, and almost if not quite motionless; or the muscles respond only by a reflex action, and sluggishly at that. The pupils are almost always dilated and motionless, indicating paralysis of the circular fibres of the iris. The skin is moist, but generally warmer than in contusion; the pulse is slow and full, while in contusion it is apt to be frequent but small; the breathing labored and stertorous, from paralytic relaxation of the vocal cords and the soft palate, and is often accompanied by a puffing of the cheeks and sputtering of the lips, phenomena referrable to the paralyzed condition of the muscles of these parts also. If a fatal issue be impending, these symptoms become worse and worse, the heart beats slower and slower, the extremities begin to get cold, and the patient dies of general paralysis or goes off in a

convulsion. This is almost the invariable termination, unless the means for removing the cause of compression be successfully applied.

It will be observed that many of the symptoms here enumerated are extremely similar to those of contusion of the brain. Indeed, there are not a few cases in which it is impossible, at least for a time, to say which condition predominates, for the simple reason that both contusion and compression may be present. The chief means of distinction are found in the tendencies to be observed in the progress of the case. If there be only contusion, a gradual amelioration of symptoms will be noticed, while if compression be also present, the symptoms either persist or become aggravated. Of course there is no difficulty in the differential diagnosis of those cases of compression which come on some time after the receipt of the injury. Contusion is always the immediate result of the injury, while those cases of compression caused by a gradual extravasation of blood and those caused by inflammatory products come on later, at periods varying from a few hours to days and even weeks.

Treatment. This will vary according to the causes producing the compression, the indication being to remove the given cause. If the symptoms depend on depressed bone, this must be elevated, if necessary using the trephine for the purpose. It may be sometimes very difficult, if the soft parts are not laid open, to tell whether the symptoms of compression coming on promptly after injuries of the head are due to bone compression at the seat of injury, or blood compression there or elsewhere. If there be no evidences of bone depression after a careful manipulative examination of the skull, all we can do will be to treat the patient on general principles; for were we inclined to seek with knife and trephine for the cause of the compression, our efforts would be almost certainly unavailing, and we would only be adding to the danger. In case there is a compound fracture accompanying the symptoms of compression, our duty is better defined. Depressed bone fragments must be elevated, and if entirely detached, removed. If any blood clots be found, they also should be removed. Should some time have elapsed since the receipt of the injury, and the late development of the symptoms indicate that the compression is caused by suppurative encephalitis, we must remember that the pus may be concentrated in the form of an abscess, or may

be diffused over the surface or in the ventricles of the brain. If there be an abscess, it may or may not be located under the seat of injury. If near by and in the brain substance, it may indicate its presence by an unhealthy appearance of the membranes. They present a dusky red, congested aspect, often bulging into the bottom of the wound, and there is an absence of brain pulsation. Under such circumstances, especially if rigors, fevers, etc., indicative of suppurative inflammation, have been present, and if the patient is evidently declining, the surgeon is not only justified but obligated either to resort to the use of the bistoury, as in opening abscesses elsewhere, or, where the local symptoms are not so palpable, to explore the neighborhood with the aspirator. In such cases a little bold surgery can do no harm, for the patient is in articulo mortis, while it may save his life.

SOME CASES OF ARM PRESENTATION.

BY J. F. HEUSTIS, M.D., MOBILE.

Case 1. Mrs. B., a stout, healthy woman of middle age, was taken in labor June 18th, 1877. She had always had great difficulty in her confinements, and, with but one exception, had lost her children in the birth. The living child died in infancy.

When seen in the forenoon, she was having strong pains at short intervals. Upon examination, the mouth of the womb was found largely dilated, and the bag of waters tensely protruding. The pressure of the examining finger, though slight, caused the rupture of the bag, and an arm was found to be the presenting part. She was put upon her elbows and knees, and the child was turned with very little trouble. The body was extracted with considerable difficulty, but the head could not be drawn down, notwithstanding the application of the greatest force consistent with safety. Unfortunately I had not brought my long forceps with me, and the small pair of short ones I had in my obstetrical bag were of no use. The time lost in getting my long forceps—about half an hour—was fatal to the child, of course. They were easily applied, and delivery effected in a very few minutes. The placenta was immediately removed, and there was no hemorrhage. Recovery was rapid, without a bad symptom. The cause of difficulty in this case was a narrow superior strait—antero-posteriorly from a projecting sacral promontory—which

opposed such resistance to the passage of the head, that it was feared craniotomy would be necessary; but with the leverage and power of the long forceps, this was obviated. The knee-elbow position rendered version a much less difficult operation than I had previously found it in the dorsal position, and but for the delay in the delivery of the head, the child would have been saved. This shows the necessity of always being provided with a pair of long forceps. And I had made it a rule to always carry them them with me when called to a case of labor; but not having had any use for them for some time, I had contented myself with carrying a very light and short pair.

Case 2. Mrs. C., a small, well made, healthy, hard-working Irish woman, had been treated by me, for prolapse of the womb, in 1874. The vagina was so relaxed she could only get relief by wearing a large Physick's globe pessary, which answered perfectly. To my surprise, I was called to attend her in her confinement, in February, 1875. Not suspecting anything wrong, I waited patiently for nature to do her share of the work, but the labor seemed to make no progress, and time wore on slowly. As soon as the womb had opened sufficiently to make a satisfactory examination, it was discovered, as feared from the unusual duration of the first stage, that it was a "cross birth"—an arm presentation. Delivery was effected with much difficulty by podalic version; child born dead. The woman made a good recovery. In this case version was performed in the dorsal position.

On the 11th of August, 1877, I was again called to attend her in her confinement. As on the last occasion, the first stage was very slow. Feeling uneasy on account of the trouble I had had with her before, I soon discovered that all was not right, and to my horror, found it to be another arm presentation. The head was resting in the left iliac fossa, and as no outline of the child's body could be felt, it was inferred to be the left shoulder and arm. My unfortunate experience made me loth to resort to version. Thinking the head might be forced down into the pelvis, this was tried by external manipulation; but it would not move. Conjoined external and internal manipulation was tried; but to make matters worse, the cord prolapsed, and no progress was made. She was then put upon her knees and elbows, notwithstanding she declared I was going to kill her "intirely;" and while in this position the cord was replaced, the arm and shoulder

pressed up, and the head forced down by the other hand outside until a strong pain came on, when she was quickly placed on her back. Everything was then found to be right. The head had engaged, and there was no chance for the cord to come down any more. She was safe, and I was immediately relieved. Strong steady pains replaced the unsatisfactory ones that had been going on so long, and the labor progressed naturally. In a short time it was over, and a *live* male child was born, which, by the vigor of his movements and his cries, showed he was "all right."

I had been filled with anxiety lest the child should be born dead, on account of the prolapse of the cord; for it was not pulsating when down, and although replaced quickly, I was not sure that the circulation was still going on through it. But as there had been no hemorrhage indicative of any separation of the placenta, it was hoped and believed the child's vitality was preserved. Here, again, the knee-elbow position was of the greatest advantage, rendering the restoration of the prolapsed cord easy, and enabling me to disengage the presenting arm from its position and to press the head down into the superior strait, where, having once engaged, the labor was suddenly changed from the most difficult and dangerous to a safe and easy one.

A consideration of the mechanics of the knee-elbow position will show how it renders easy and possible obstetric operations that are otherwise difficult or impossible. In it the womb and its contents are passive, and free from all pressure from the superincumbent viscera and the action of the abdominal muscles, so that motion can be imparted to the child in utero unopposed by the resistance of their compressing force.

In addition to the three cases mentioned, it has fallen to my lot to have had two more cases of arm presentation, making five in all, and the trouble and anxiety they gave me impels me to pay my mite of tribute to so invaluable a resource as the knee-elbow position, for rectifying the presentation and rendering delivery safe and easy.

COMPLICATED LABOR—TWINS—REMARKABLE SUSCEPTIBILITY TO THE EFFECT OF CHLOROFORM.

BY DR. R. E. RICHARDSON,
Of Fayette, Miss.

Late in the afternoon of February 29th, 1876, a messenger brought me an urgent note from Dr. P. H. Wade, to come to his

assistance eight miles in the country. On reaching the place, some time after night, the doctor informed me as to the nature of the case—obstructed labor of many hours' duration. Careful examination developed a knowledge of two children instead of one, the first presenting breech with knees jammed behind the pubic bones, the nates and feet filling the space below. The second child was driven head foremost upon the knees and chest of the first, packing it tight. The lady was full formed, capacious pelvis and abdomen. We determined to put her under the influence of chloroform, and, during the intervals between the pains, which were powerful and threatening to rupture the uterus, try, if possible, to combine position, the relaxing influence of the anæsthetic, and purchase upon the breech upwards, to relieve the knees from their packed position and bring down the feet, in which we succeeded beyond our expectations, and delivered a fair-sized child. The feet and legs were much swollen from the pressure, and the chest not a little out of shape. The child did not breathe at first, nor for some minutes, but after patient and laborious effort on the part of Dr. Wade, it was resuscitated and is living to-day, September 20th, 1877.

The second child was delivered soon after the first, dead. The mother did well.

What was unusual to me, was the readiness with which the patient went *perfectly* under the influence of the chloroform; it was necessarily kept up for some time. I have given it freely for many years in surgical and obstetric practice, and saw much of its use on the field and in hospital during the war between the States, but never witnessed any approximation even to this case.

One single inhalation of the vapor was sufficient to induce complete and prolonged insensibility. This was the case from the first, and at each renewal, which was several times required, the deepest sleep followed a single inspiration. My custom is to require patients to hold up one or both hands until I tell them to take them down, instructing them at the same time to breathe as full as possible. The moment the hands fall the operation begins. As yet, I have never had an accident. May not much of the danger attending the administration of chloroform be justly attributed to the prolonged use of it after the full effect has been secured? Are not the powers of life often overwhelmed by ignorance or inattention on the part of the physician and his

assistants, in permitting *a single* inhalation beyond what is absolutely necessary? The plan suggested has answered well in my hands in the past, and I have confidence that it will do so in the future.

Fayette, Miss., September 20th, 1877.

CENTRAL KENTUCKY MEDICAL ASSOCIATION.

The Association met at Harrodsburg, Kentucky, in the Grange Hall, on the 18th of July, 1877, at the usual hour. The President, Dr. Wm. Hoffmann, of Lancaster, in the chair.

Present—Drs. Meyer, A. D. Price, McKee, Carpenter, Harlan, J. L. Price, Plummer, Forsyth, Willis, Johnstone, Craig, L. C. Spilman, Bronaugh, McMurtry, Dunlap, H. Brown, Bahon, and Erwin, and Dr. R. O. Cowling of Louisville as guest.

Dr. C. H. Spilman, the appointee, being involuntarily absent, the debate was postponed to a later hour.

Dr. Carpenter, of Crab Orchard, reported a case of puerperal convulsions with recovery, followed by some remarks on the nature, cause, etc., of this form of convulsions.

The President announced that the Association would hear Dr. Cowling, who, being introduced, read an exhaustive paper on

Fractures.

After returning his thanks for the invitation extended to him to address the Association, he spoke of the vastness of the field covered by the subject of fractures, and the impossibility of dealing with it comprehensively if matters of history, discussion of methods, etc., were indulged in. He proposed, he said, to put what he had to say in the form of aphorisms, and these would relate chiefly to treatment. Allusion was made to the great difference of opinion existing between surgeons and schools upon the most fundamental principles in connection with fractures, in prognosis and treatment, the multiplication of splints, etc., and the tendency to forget that the indications in the treatment of all fractures are the same. He thought that a series of aphorisms on the subject would be useful, as, if not agreed to, they

would still present propositions for discussion. The aphorisms* which he would offer to-day, he said, were such as he had been led to adopt from experience, and the following in the main covered the ground.

Aphorisms.

That in the diagnosis of fractures, while crepitus was the most satisfactory sign, it was not always necessary or desirable to elicit it. Thus the physiognomy of fractures at the lower end of the radius determined the nature of the lesion; that this, with subjective symptoms, gave the diagnosis of fractures of the femoral neck; that in fractures of the outer third of the clavicle, pain was the chief sign; that in impacted fractures, except to relieve deformity, the fragments should not be unlocked, and hence crepitus could not be obtained. That the examination (as well as the dressing) of fractures is best done under an anæsthetic. That in simple fractures the prognosis is always favorable, and that improved methods of dressings have necessitated the laws for amputation in compound fractures to be recast.

That the best time for dressing a fracture is immediately after its occurrence, and temporary dressings are only to be used when permanent ones cannot be obtained. Swelling is prevented by early dressing, and contiguous joints are always to be secured. That comfort is the sign that all goes well, and nothing is gained by frequent removal of dressings to examine the limb. That one of the commonest causes of failure or disaster in fracture practice is that only bone and muscle are considered, and nerves and blood-vessels neglected. That in compound fractures, which should be treated with oakum and the plaster dressings, no truss is necessary under ten days or two weeks. That in cases of consultation the physician should yield to the surgeon, and there should be no compromise between different modes of treatment. Neglect is the chief plea in suits for malpractice.

That the dressings for all fractures of the forearm are the same, whatever their situation. Special splints for Collis' fracture are useless, compresses unsurgical; the Pistol splint has no effect on the interosseous space, and interosseous pads are obsolete. That the dressings for a fractured forearm should consist

* Each aphorism was abundantly elaborated with illustrations and explanations.

of wooden splints, reaching from the elbow to the tips of the fingers, and a little wider than the arm. Either the limb or the splints may be padded, and preferably with cotton batting. It is to be secured with thread, and the arm bandaged over the splints from the tips of the fingers to the elbow. At the end of a week or ten days the splints are to be shortened, so as not to reach beyond the roots of the fingers, and the fingers exercised freely.

The deformities which might result after treatment were pointed out, and the prognosis in these cases mentioned.

That in all fractures near the vicinity of the elbow-joint (and portions of the shaft of the humerus, except that of the olecranon), rectangular splints must be used. These were best made of pasteboard, and the earlier stages of treatment should include the hand. That passive motion is to be instituted early in fracture near the elbow, but more or less stiffness of the joint must be expected.

That fractures of the upper end of the humerus are treated by the shoulder cap, the side of the body serving as an inside splint.

That temporarily, fractures of the clavicle are best dressed with a sling, and body bandage—permanently by Sayre's apparatus. That axillary pads cannot be worn with comfort, and are of doubtful utility.

That the best method to insure against deformity is to fix the scapula. That deformity is likely to remain if it show much at first. That fracture of the outer clavicle is frequently overlooked; that pain is its chief symptom.

Concerning fractures of the lower extremity, the discussion of which occupied the greater part of the paper, he gave the following as the chief aphorisms for their management.

That the question of continuous and active extension and counter-extension in this class of fractures could only seriously arise in fractures of the thigh. That in these, beyond the primary manipulation necessary for reduction, active extension can only be called for in the rarest instances.

That extension and counter-extension practiced by means of the long splint with perineal band, etc., or by the various apparatus which are constructed on the same principle, are generally inadequate for the purpose for which they are designed. That if they are so applied as to exert sufficient force on the muscles

to effect the object, they soon become unbearable to the patient, and if this force is prolonged for any time, they are liable to cause injury to the soft parts. They quickly become disarranged, and require constant professional oversight. The main advantage the long splint may have is in preventing angular displacement.

That whenever active extension is required, there are but two methods worthy of consideration—one by Smith's anterior splint, or by instruments constructed on the same principle, and the other by Gurden Buck's weight and pully.

That the normal length of the limb is best restored by the early apposition of the fragments, immobilization, and the proper control of muscular activity.

That the plaster dressing is the proper dressing for all fractures of the lower extremity; that it fulfils the indications for extension and counter-extension generally far better, but always as well as that obtained from the use of any other means. That the comfort afforded the patient and surgeon is infinitely in its favor. That the results secured from its use compare favorably with those of any other method. That in compound fractures it is unrivalled. That deformities, or worse accidents, which may have happened at times to cases in which it was employed, may be traced to its improper application, or to causes which would have operated had any other method been used.

Explicit directions were given concerning the manner of properly applying the dressings, and the relative merits of the several articles in use for imparting the requisite stiffness to the bandages were enumerated. Of these articles he expressed a decided preference for plaster of Paris.

Emphasis was laid, by frequent allusions, on the fact that the comfort of the patient under this treatment was a certain mark—that no anxiety or doubt need be felt as to the favorable progress of the case.

The paper consumed nearly an hour in reading, and was listened to with marked attention and every manifestation of interest. The remarks following were exceedingly complimentary to it, and indicated the measure of appreciation in which it was held.

Dr. Dunlap, of Danville, declared it was eminently practical, and embodied all the modern advances on the subject of fractures. His experience with plaster of Paris dressings fully

corroborated the statements made by the author in its praise. He alluded to a fractured clavicle in an infant now under his charge, which he had found difficult to manage.

Dr. McKee, of Danville, was very favorably impressed with the great merit of the paper, and said it would prove of value for reference. He expressed some doubts, however, as to the propriety of sealing up entirely compound comminuted fractures of the femur, and especially of the neck, at the start.

Dr. Carpenter fully agreed with the views advanced in the paper, and particularly with those in reference to the superior advantages of plaster of Paris dressings. In regard to the fractured clavicle alluded to by Dr. Dunlap, he said he had recently cured a similar case by fixing the scapula with adhesive strips.

Dr. Craig, of Stanford, was forcibly struck with the great value of the paper read by Dr. Cowling, and said he cordially endorsed the statements made in it.

Drs. Plummer, Harlan, McMurtry, H. Brown, and Johnstone, followed in the same strain, the latter dwelling upon the importance of sealing up compound fractures at once.

Dr. Erwin, of Danville, said the paper was entitled justly to all the praise that had been bestowed on it by the members preceding him, as it was an epitome of all that was valuable and practical in the treatment of fractures. He thought so highly of it, he said, that he would move the thanks of the Association be voted Dr. Cowling, and that he be requested to publish it in some medical journal, which was passed unanimously.

Dr. Cowling expressed his thanks, and added some further remarks explanatory of some points in his paper, and on Pott's fracture.

Dr. Spilman, of Harrodsburg, having arrived, the President announced the time for the regular debate.

Dr. Spilman read the opening paper, on *Pneumonia, with special reference to Treatment*—the question for the day.

The paper was quite lengthy, and was a learned and scholarly production, written with the author's usual ability.

The first part of the paper was taken up with the symptoms and pathology of the disease, and with arguments in support of his view that pneumonia is *not* a self-limited disease. On this point he said: "I am totally at loss to conceive how the idea could ever have suggested itself to any one that pneumonia is a cyclical disease; for sure I am that there is nothing in the course,

history, pathology, or the results of treatment, to justify such a conclusion; and I am equally satisfied that no evidence in support of it can be produced. It is admitted by Niemeyer, however, or clearly intimated, that the profession owes a debt of gratitude to Homœopathy for the valuable discovery. I shall have no controversy with the learned professor in the claim of paternity he sets up for his own country—the spot on this planet whence all transcendentalism emanates. This is but a single one of a brood whose progenitor hails from Germany, that huge bump of ideality on the European brain.

"It is true when pneumonia, either spontaneously or in spite of treatment, passes through all its stages of engorgement, hepatization, purulent infiltration, elimination, or death, these successive morbid processes necessarily require a given duration of time; call it a cycle if you will, but this is by no means what the advocates of its cyclical character would have you understand. They would place pneumonia in the same category with all other self-limited diseases, which are propagated by a specific virus—stamped in their very inception by a definite order of results—marked in their progress by a regular succession of pathological changes, with a determinate tendency to a state of health, at a period of remarkably uniform duration. It is also a well-known law of these diseases, that the recuperative power with which their predisposing causes invest them greatly surpasses any aid which art can afford, active treatment tending only to embarrass nature and exasperate the disease. Nor is it possible by any treatment to establish restoration near the invasion, or abbreviate a disease embracing a given cycle of inexorable necessity. In pneumonic inflammation, on the contrary, we have a disease of a very different nature, governed by different laws; and our study of its etiology, pathology, history and treatment, has led to the conviction that it tends much more strongly to effusion and disorganization than to resolution—that the spontaneous relief of an extensive plexus of vessels engorged with blood, and under the disturbing influences of the respiratory movements, and propelling force of an excited heart, is too improbable an event to be thought of otherwise than as an exception, the rule being an increase of engorgement and progressive encroachment on the proper functions of the organ. Either a temporizing, expectant, or stimulating treatment, in such a case are both irrational and dangerous."

After alluding to pleurisy and pleuro pneumonia, as augmenting the obstacles against the assumption that it is a self-limited disease, he said: "The truth is, Mr. President, the idea that pneumonia is a cyclical disease is a myth, and will not stand the clinical test; as every one who has been much in contact with it, and combatted it with manly vigor, will attest, and as will, I think, have been abundantly illustrated in the sequel."

Passing on to the treatment, he advocated free venesection, especially in the first stage, with tartar emetic, digitalis, and veratrum viride, and preferably the tartar, as superior to all other means for the cure of pneumonia, when used with judgment.

In using the lancet, in the first stage, he said the blood should be suffered to flow until "approaching syncope." If deliquium ensue from a small loss, the orifice must be closed and reaction waited for. If the pain and difficult respiration be not relieved, the orifice should be again opened, and it will be found that "the blood-vessels have become liberated, and the tolerance of loss so increased by the former bleeding as to enable 20, 30, or 40 ounces to be taken before syncope again comes on." In a few hours the patient should be visited again, and if the pain and breathing are not sensibly relieved, he must be bled again to syncope. This, he said however, would be necessary in but a very few cases, if the patient has been "blooded at the former visit without the fear of debility, and especially if small doses of tartarized antimony have been administered to maintain the sedative action produced by the depletion." With a dose or two of calomel and opium, and the continuance of the tartarized antimony, the cure of the first stage is completed.

In the second stage, if the patient is not seen before, venesection "in a more moderate degree may be useful, if not indispensable, in preventing the further spread of the disease and promoting elimination."

After explaining at length the physiological and pathological principles upon which he based the effective use of the lancet in this stage, he spoke of the great value of tartarized antimony in controlling the collateral œdema, the chief cause of the dyspnœa in this stage, but urged caution and discretion in its use, so as avoid emesis and catharsis. Thus perseveringly used, he said, "no agent excites so copious an effusion of albuminous serum

from the walls of the air vesicles, which acts as a solvent in the disintegration and liquefaction of their amorphous contents."

Of digitalis and veratrum viride he spoke highly in this connection, but said, after a thorough trial of both they had failed to act as satisfactorily as the tartar.

Powerful aid, he said, is also obtained by the sorbefacient effect of calomel and opium—the former in minute alterative doses.

In conclusion he said: "The evidence of transition to the third stage is anatomical; no unequivocal signs, either physical or general, mark the precise period. We have therefore the same indications of cure, with this exception, that the increasing adynamia may bar depleting remedies, and call for stimulants and tonics in proportion to the degree of depression—calomel and opium in reduced doses, simply to promote elimination, and the application of blistering plaster; iron and quinine, with or without digitalis, according to the force and frequency of the pulse. Even wine in some cases may be called for; but the cases in which the stronger alcoholic liquors are admissible are extremely rare, and their indiscriminate employment, as recommended by some, is exceedingly reprehensible.

A lively and quite protracted discussion followed, which was participated in by most of the members present, and in which the views advocated by the writer, relative to the treatment and the cyclical nature of pneumonia, were vigorously assaulted.

Dr. Dunlap had listened with amazed interest to the paper, and whilst he admitted the ability and learning displayed in it, which was to be expected from Dr. Spilman, he could not subscribe to its doctrines, except to a very limited degree. He believed that venesection might be occasionally beneficial in pneumonia, but employed to the extent urged by the speaker he thought would be ruinous. He had no routine treatment in the disease, but combatted the symptoms as they appeared.

Dr. McKee was widely opposed to most of the views advanced in the opening paper. He had not infrequently seen cases of pneumonia recover under proper nourishment and hygienic regulations alone, whilst there were a few cases benefited by bloodletting. Ordinarily, he thought there was too much interference in pneumonia cases. The Germans, he believed, had contributed more to the solid advance of medicine than any other nation, and he regarded them to-day as at the head of the profession,

Dr. Carpenter said many cases of pneumonia recovered without treatment. In plethoric subjects, where the lung is greatly engorged, and the heart diseased, venesection would be beneficial. He was opposed to the extended use of opium and tartar emetic, as tending to debilitate the patient and to weaken the heart's action. Chloral was preferable to opium, and if the latter is given it should be combined with atropia. In the first stage he spoke of the benefit derived from cupping, with digitalis to strengthen the heart, and in the third stage stimulants and quinine. He said he had seen ice bags applied to the chest for an hour or two with advantage.

Dr. Meyer, of Danville, endorsed the views expressed in the opening paper with reference to the pathology of pneumonia, and in the main the treatment also, with some modification. He alluded to the efficacy of cold water baths in the treatment of the disease, and of his practice of giving Dover's powders and calomel.

Dr. H. Brown remarked upon the value of quinine in the treatment of pneumonia.

Dr. Cowling, being invited by the Chair to take part in the debate, said he had been very much interested in Dr. Spilman's paper and in the discussion that followed. The paper had given forth no uncertain sound, and he was glad to have heard the claims of the lancet presented in so learned and impressive a manner. He had had very little experience in blood-letting in the treatment of disease, but had seen something of transfusion. His treatment of pneumonia was based mainly on quinine. He used the oil jacket, Dover's powder, etc., in the first stage, afterwards supporting means.

Dr. Johnstone, of Danville, said, if it were borne in mind that there are two forms of pneumonia, the bad results from active treatment might be explained away, as it was badly borne in the catarrhal form, but was well tolerated in the croupous variety. After giving the pathological difference between the two, he described the manner in which venesection did good in pneumonia, by removing the strain from the weakened vessels, and allowing them to return as far as possible to their normal calibre, before stagnation and the consequent changes in the blood occur.

Dr. Spilman said he would like to have made a rejoinder to the criticisms on his paper, but owing to the lateness of the hour

and the long distances that lay between their homes and most of the members, he would not detain the Association with any further remarks.

Dr. Craig read a paper on the "Smith Murder Trial, and its Results viewed from a Medico-Legal Standpoint."

The chief point of interest in the case was the fact that on his trial the evidence, both medical and lay, showed overwhelmingly that Smith was laboring under mental aberration at the time, and long before, the homicide was committed. He was tried twice. In the first trial the jury disagreed. In the second, notwithstanding the prosecution was considerably weakened in its testimony, and the defence greatly strengthened, Smith was convicted of murder and sentenced to imprisonment for life. Pending a motion for a new trial, Smith was removed for safety from the Stanford jail to Danville, where, after a few weeks, he committed suicide, by hanging himself in an ingenious manner to his cell door.

Smith had shot to death an old man—Carson—near eighty, for some fancied wrong, at Crab Orchard, Ky., on Sunday, 23d of April, 1876, close to the church door, and while services were going on inside. During the progress of the trial, the usual invective and vituperative abuse were poured on the medical witnesses by the lawyers for the commonwealth.

Dr. Erwin said the case was very interesting, and carried with it very impressive lessons. The verdict of the jury was both atrocious and without excuse or shadow of justice It was sickening to think that such an appalling crime should be committed by people claiming to be civilized. He was glad Dr. Craig had reported the case, as he believed it would have a salutary influence.

Dr. McMurtry exhibited Holden's Resonator, and Sayre's suspending apparatus for the treatment of spinal diseases.

Dr. Carpenter exhibited Brickell's Perforator, and Newman's short uterine forceps.

Dr. A. D. Price presented a number of specimens of dialyzed iron to the members for trial.

Dr. C. H. Spilman announced the death of Dr. G. W. Rose, a member of the Association, and moved a committee be appointed to prepare suitable resolutions to be presented at the next meeting. Passed.

The President appointed Drs. C. H. Spilman, Craig and Dunlap.

The resolution introduced at the last meeting by Dr. Craig, setting apart an hour for a demonstration in anatomy, was passed.

Dr. Johnstone brought up the subject of a State Board of Health, and after dwelling upon the great importance and necessity of such a body, moved a committee of five, with the Secretary as chairman, be appointed to communicate to the Committee from the State Medical Society on the State Board of Health, the desire of the Association to coöperate and assist in any manner in effecting the object. Passed.

The President appointed Drs. Erwin, Johnstone, H. Brown, Reid, and A. D. Price.

Dr. Craig was appointed to make the Demonstration on the Anatomy of the Thigh, with special reference to femoral Hernia, and to ligation of the femoral Artery.

Dr. H. Brown, of Hustonville, was appointed to open the debate at the next meeting, on the *Diagnosis and Treatment of Diseases of the Rectum.*

After a vote of thanks to the Grangers for the use of their Hall, and to the members from Harrodsburg for hospitalities, the Association adjourned at 5 p. m., to meet in Stanford on the third Wednesday in October next.

GEO. T. ERWIN, M.D.,
Permanent Secretary.

NEW ORLEANS MEDICAL AND SURGICAL ASSOCIATION.

(Extracts from Meeting No. 112.)

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Dr. Lœber then reported the following case, as interesting, especially on account of the legal questions involved.

A widow, accompanied by her mother, called on Dr. S. The former requested the doctor to examine her, and ascertain whether or not she was pregnant. Dr. S. examined her carefully, and told her that she was not only pregnant but was almost at full term, and would soon be delivered of a child. She told the doctor that he was certainly mistaken, as she was a widow, having lost her husband eight years before, and since then had not

had intercourse with any man. The doctor persisted in his opinion, and told her to seek the advice of another physician. She left his office.

A few days later Dr. S. was called to the same lady. He found the uterus emptied of its contents, and violent flooding occurring. In reply to his question as to what had become of the child, she said that none had been born. The doctor, in his dilemma, called Dr. Lœber in consultation. Dr. L. examined her, removed clots of blood from the vagina, and a piece of placenta and membranes from the uterus. The flooding then ceased. Dr. L., holding the fragment of placenta and membranes before her, asked her what had become of the child. She said that she knew of no child. Drs. L. and S. then departed, feeling certain that a child had been born, and fearing that it had disappeared criminally, repaired to Judge R., and stating the circumstances, asked his advice. Judge R. advised that, in order to free themselves from any taint of complicity, they should make affidavit to the following facts: That they had been called to see Mrs. —; had found her flooding; removed portions of placenta and membrane; that a child had been born, and that they knew not what had become of it. They went before the District Attorney and made affidavit to these facts.

Six or seven days after this occurrence, a colored woman, washing clothes in the yard adjoining the residence of the widow, noticed an unpleasant smell from under the house, and asked her husband to go under and remove the cause. He complied, and after searching for some time, discovered the dead body of a child under some wood. The Coroner and City Physician were notified of the fact and reached the house after dark, and by the aid of two candles proceeded to make a post mortem examination. They found the body of a newly-born child in a state of advanced decomposition. The placenta and cord were not attached. The thorax of the child was hastily opened, a portion of the lung cut off and dropped in a vessel containing water: it floated. The City Physician states that the blood from the cut lung was red. The circumstances attending the recent illness of the widow, and the finding of a newly-born child under her house, led to such suspicions that the verdict of the Coroner's jury was, that Mrs. —— had been guilty of infanticide. The case came up before the Superior Criminal Court; the woman

was tried for murder, and the evidence not being strong enough to establish her guilt she was acquitted.

The questions of medical jurisprudence are as follows:

1st. Had the woman been delivered of a child?

2d. Was the child alive after birth?

3d. Had the child come to its death naturally or by violent means?

In answer to the first question, Dr. Lœber stated that from the knowledge he had of the case, and the fact of his having removed portions of placenta and membranes, he could state positively that the woman had been delivered of a child.

In regard to the second and third questions, he was certain that they could not have been definitely answered. Decomposition had progressed to such an extent as to not allow even an expert to judge whether there were signs of external violence, and the hydrostatic test for the lungs is not infallible, as sometimes a child breathes while the body is undelivered and dies immediately after birth; and decomposition, causing the formation of gas, may distend the lungs; or artificial respiration may have inflated the lungs of a dead child.

Dr. Lœber, returning to the first question, stated that an intrauterine fibroid, becoming detached spontaneously, would present symptoms of flooding, lochia, and other phenomena similar to a miscarriage.

Dr. Crawcour agreed with Dr. Lœber in regard to the questions concerning the child, but thought that there were peculiarities accompanying recent delivery that were unmistakable—the lochia, for instance, their character and smell, the color of the nipple and the presence of milk in the breasts

Drs. Holt and Lewis thought that if any time had elapsed since delivery, it would be as difficult to decide that question as to determine the existence of pregnancy during the early months of gestation.

Dr. Holliday said that the case was one of unusual interest. The questions in regard to the child had been answered satisfactorily by Dr. Lœber. The question of greatest difficulty is to decide, on being called to a woman, whether she has recently been delivered of a child. Can we do this? He felt certain that a mistake could be made, and to substantiate this statement reported the following case:

A married woman presented herself to him, professing to be

pregnant for the third time. She supposed herself to be in the sixth month of gestation, but complained of feeling strangely, different from her former pregnancies. The case progressed until the ninth month. He was summoned to her bed-side. Violent labor pains were present. A vaginal examination revealed a softened and circular os, slightly dilated; could not determine the presentation. Left the house and returned after an hour or two. The os had dilated, and a mass was protruding from the mouth of the womb; thought it might be a case of placenta previa. Labor progressed, and hemorrhage was slight. In the course of time delivered her of a mass of hydated cysts. The womb contracted well. A bandage was applied to the abdomen. On the third day there was milk in her breasts. The lochia made their appearance, and the discharge was as usual after labor.

Now here was a case presenting evidence of a recently enlarged womb, abdomen, and a lochial discharge from the vagina, and secretion of milk in the breasts. All the physical evidences of the recent delivery of a child were present. What would an expert have said, had he been shown this case, examined her condition, and had known nothing of her history? He would undoubtedly have said that she had recently been delivered of a child.

W. H. WATKINS, *Secretary.*

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ERGOT.

BY L. F. SALOMON, M.D.

(Read May 22d, 1877.)

Mr. President and Gentlemen:—In presenting to you this evening, for discussion, the subject of Ergot, it is not my purpose to enter into a detail of the history or chemical properties of that drug, but only to direct your attention to its effects upon the vaso-motor system, passing by its use in obstetrics, as it is in its capacity principally as a hemostatic that I propose to say a few words.

Although ergot has been employed medicinally for over two centuries, it is not until very late years that its value in other than uterine inertia was known. As late as 1866, we find it stated on the best authority that ergot checks hemorrhage from

the womb "principally, if not solely, by exciting muscular contraction of the viscus, by which its blood-vessels are compressed and emptied and their orifices closed." Now, although the contraction of the uterine muscular fibres is a factor, and a powerful one, in checking hemorrhage in this situation, we must look farther for the principal cause. Surely we cannot account for the influence of ergot in checking hemorrhage in other situations, or even in the uterus when not distended, to the contraction of the muscular fibres of the surrounding tissues. How, then, is the desired result accomplished? Most probably by its action upon the capillaries themselves, producing a contraction of the voluntary muscular fibres of the arterial coat, thus closing the vessels and arresting hemorrhage.

In hemorrhages from all situations without distinction, and when not of such a nature as to require the ligature, ergot undoubtedly stands at the head of the list as a remedial agent. I have seen it succeed in arresting hemorrhage when all other remedies had failed. One case in particular, which impressed me at the time, will bear mentioning, as it shows conclusively the power of this remedy to check hemorrhage immediately. It was a case of yellow fever, in which repeated hemorrhages occurred from the bowels, kidneys, nose and gums. Tannin, gallic acid, iron, etc., had been given freely for two days, and still the hemorrhage continued; and when at last my patient was at the point of death, and the bleeding still continuing, I injected hypodermically three (3) grains of ergotine. The effect was instantaneous. The hemorrhage ceased immediately, and did not return.

I find this latter the best manner of administering the drug in hemorrhage. Three grains of ergotine can be dissolved in ten minims of water, and the whole injected at once. The French preparation known as Bonjean's ergotine is the most reliable. Often the stomach will reject or is not in a condition to absorb the different preparations of ergot, if given *per orem*, and the only certain method of procuring the desired effect is by the subcutaneous injection. Besides, the effect is immediate; being obtained much more rapidly than when given by the stomach, which, as we are all aware, is an item of no small importance.

One point to which I would draw your attention is, the effect of ergot in preventing and relieving congestions; especially in yellow fever, where that terrible and fatal complication, conges-

tion of the kidneys followed by suppression of urine, too often takes place.

Besides giving a partial history of one or two cases, I shall premise by stating that during the yellow fever epidemic at Barrancas, Fla., in 1875, of a number of cases in which ergot was given in large doses at the outset of the disease, with the view of ascertaining if it might not to some extent prevent local congestions, in no instance did suppression of urine occur, although this was one of the most frequent complications during this epidemic.* Neither was the urine, although albuminous in some cases, appreciably diminished in quantity.

Case 1. F. N., age 31, taken sick July 22d. Complains of headache, pain in back and loins; skin dry; eyes glistening. Temperature 105.5°. Besides usual treatment at beginning of attack he was given, at 9 p. m., ext. ergot, fl℥ss.

July 23d—morning. Feels better; headache gone, and no pain in region of kidneys. 6 p. m.—Temperature 104.5°. Urine since morning, ℥xiii., non-albuminous, sp. gr. 1020; feels quite at ease and comfortable.

July 24th. Condition same; urine ℥xxxiii.

July 25th. Urine ℥xxxvi., non-albuminous. Case progressed favorably.

There is no doubt but that the local congestions, causing violent headache and pain in renal region, were relieved by the ergot.

Case 2. S. W., age 33. Presented same features as above case, with the addition of very highly albuminous urine. Although this was present, the urine was not diminished in quantity.

Case 3. J. M., age 8 years. Taken sick July 25th. Temperature 104°; pain in back and head; face and eyes very much congested. ℞—Ext. ergot fl℥i.

July 26. Temperature 100°; urinates freely; no pain; face normal in appearance. Progressed favorably. In this case nothing was given at the outset of the disease but the ergot, which was followed by a marked relief of the congestion.

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* See report by Surgeon G. S. Sternberg, U. S. A., in N. O. Medical and Surgical Journal, March, 1877.

These cases are types of the progress of those in which the ergot was administered at the beginning of the disease. The majority of deaths in this epidemic followed upon a scanty flow or total suppression of urine, and in no case where the ergot was given did death occur.

True, this is but negative proof, and the ergot was used in only a few cases, but the result justifies a farther trial of the remedy. For if it becomes an established fact that ergot will lessen the tendency to, or prevent congestion of the kidneys or other local congestions in yellow fever, it is a great point gained in the treatment of that disease, and will doubtless lessen the frightful rate of mortality which we are obliged to chronicle in every epidemic.

While making the statement above that no deaths occurred in those cases where ergot was administered, I am merely making a plain statement of facts, and must not be understood to claim that recovery will invariably follow upon this system of treatment; but I feel safe in asserting that it will undoubtedly lessen the mortuary list.

Prophylaxis is better than cure, for we are all aware of the difficulty of getting the kidneys to act after suppression has once occurred.

In purpura hemorrhagica, from whatever cause, ergot has proved of benefit. Dr. W. L. Lane, in the *British Medical Journal*, September 5th, 1874, mentions a number of cases which were cured by the hypodermic injection of ergotine in one grain doses.

It is equally of benefit in suppurative mastitis, and will often limit the disease or arrest it by diminishing the excessive secretion of milk and preventing suppuration.

In diabetes insipidus it has been highly recommended, but in two cases in which I was able to try its effects it failed to prove of any benefit. In chronic diarrhœa, ergot proves useful by relieving the atony of the intestinal mucous membrane, and by producing contraction of the arterioles, prevents serous transudation. Under its use the discharges may become more frequent, owing to increased peristaltic action; but when the *tone* of the intestinal lining membrane is restored, and the serous discharges are diminished in quantity, appropriate remedies may be used to complete the cure.

Ergot has been recommended and successfully used as a reme-

dial agent in neuralgia, and I am disposed to believe that in these cases its efficacy is in a great measure due to the fact that it removes the local congestion.

In enlarged spleen, ergot has under my observation proved of benefit. Three or four grains of ergotine injected into the substance of the enlarged organ daily, or every second day, will very rapidly reduce its size. This result is doubtless brought about by the action of the ergotine producing contraction of the blood-vessels in the spleen, thus diminishing the supply of blood and lessening hyperæmia. The usual result following upon a diminished blood supply takes place, and the size of the tumor is diminished.

Although I have had no opportunity to try the effects of ergot in non-inflammatory glandular enlargements in other situations, I am inclined to think that in simple lymphomata due to hyperplasia of the elements of the gland, in bronchocele, etc., it would prove of benefit. At any rate, it deserves a trial.

At the conclusion of Dr. Salomon's paper, Dr. Dell'Orto said: I have often used ergot in several diseases, and always with satisfactory results. I spoke already to the Association of the good effects which I obtained with this drug in dysentery. I want now to call your attention to its application to phthisis.

Over twenty years ago, in Italy, a premium of three thousand francs was proposed by one of the Academies of Sciences for the best monography on the treatment of phthisis. Dr. Parola, a very learned and modest practitioner, living in the country, was awarded this prize over many competitors. It was indeed a very precious and interesting pamphlet, in which several cases were related (if I remember well, a hundred) of phthisis, in every stage, cured with ergot, administered during several months in doses gradually increasing until signs of relief appeared. The preparation used by Dr. Parola at the commencement of the treatment was an infusion of 20 grains of bruised ergot in six ounces of water, to be taken in six or seven times during the twenty-four hours.

It was in 1861 that I had the first opportunity to make the experiment of ergot in phthisis.

A young man, 28 years old, living on the frontier of Mexico and Guatemala, had been suffering from his right lung for several weeks before he applied for any medical attendance. I suppose

that he had pneumonia, which was neglected on account of there being no physician in that locality. When he sent for me (I was travelling at the time in the neighborhood), the disease appeared to be phthisis of the right lung in its second stage; the inflammatory deposit was already commencing to break up and degenerate, presenting to auscultation that peculiar moist crepitus of several bubbles characteristic of this stage, accompanied by high, almost continuous, fever, night sweats, wasting of the body, and a very severe hæmoptysis. I do not exaggerate in saying that he spat more than six ounces of pure blood every day.

Though there were no hereditary tubercular antecedents in the family, I considered the case very grave, and stated to the patient's relatives my firm belief of a difficult if not impossible recovery. But, as they insisted upon my doing what I could, I made up my mind to try the ergot, and I did, with all the earnestness of the young practitioner. I commenced with 20 grains, administered in the following prescription: ℞—Secal. corn. cont. gr. xx. inf. in aq. fervent ℥iv., syrup poligal ℥ii., tinct. digital. gtt. vi., to be taken by tablespoontuls during the twenty-four hours. Every two or three days I increased the dose of ergot by two grains. After one month the relief was really astonishing; the fever and all the inflammatory symptoms had been gradually decreasing, the hemorrhage had almost disappeared, and the appetite improved. Encouraged by such unexpected result, I continued with the treatment, giving the ergot regularly every day, and combined it with good nourishment, and occasionally with cod-liver oil, or some other preparations of iodine. At the end of six months the young man was cured, the weight of his body having increased several pounds.

The largest dose of ergot taken by this patient was half an ounce in the twenty-fours; and I must say, that he did not have any symptoms of irritation of the stomach or ergotism. I attribute this to the slowly increasing by the dose of only two grains every two or three days.

Since that time I have invariably given ergot to all my cases of phthisis, and in every stage; and though I do not claim to have had in every case so happy results of real cure, I am satisfied that in every one ergot has relieved the patients better than any other medicine. I firmly believe that, combined with small doses of digitalis, it stops sooner than any other medicine those two most dangerous symptoms of phthisis, fever and repeated

congestions, by regulating the action of the heart, and causing the disease gradually to lose the inflammatory and assume the chronic character. Chronicity, as you know, is one of the desiderata we are looking for, for the cure of phthisis.

Dr. Parola failed to give the explanation of the modus agendi of ergot. But now that we know, by the microscopical observations of modern times, how nature can heal up an ulcerated lung by clearing out the morbid deposit (whether tubercular or inflammatory) which constitutes the disease, and replacing it by a new formation of a fibroid tissue, which surrounds the affected lung, contracts it, narrows the pulmonary space, furnishes walls to cavities, and thus localizes the disease and arrests its progress—now, then, that we know all this, I venture to say, that the remarkable property of ergot in bringing about contractility of the muscular fibres of tissues, and especially of arteries, must have decided influence in helping nature in this slow and health-tending process of local reorganization.

CURRENT MEDICAL LITERATURE.

ABSTRACT OF CLINICAL LECTURES ON SYPHILIS, FOR THE USE OF STUDENTS.

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Lecture I.—*Definition—Sketch of Periods—Varieties of Sore—Description of each—Chancres in Urethra—Chancres in Female—Inoculability—Period of Incubation— Unity of Syphilitic Poison.*

Definition.—Syphilis is an acquired, or hereditary, specific contagious disease, characterized by local manifestation at the seat of infection, and followed by general symptoms of a slow, inflammatory, progressive kind, invading first the skin and mucous membrane, and subsequently every tissue of the body.

The above may serve as a definition, but requires the amplification given in the annexed sketch of the periods of syphilis, which affords a sort of glance at the entire history of the disease.

Sketch of the Syphilitic Periods.—Syphilis is probably a zymotic disease, and like other zymotic diseases, propagates itself by contagion; the contagium particles being only capable of transmission by direct inoculation from one animal to another. The poison (zymes, or germs) having penetrated beneath the cuticle,

lies dormant for a varying period (*period of incubation*), before it gives rise to the local manifestations in the shape of an ulcer or papule (*period of primary symptoms*). This ulcer, unless suppurating so freely as to directly discharge the poison germs, communicates the contagion along the lymphatics to the nearest gland, which on the receipt becomes inflamed.

Here, again, a final arrest of the poison may take place by the gland suppurating, and thus throwing off the virus; or, after a time, during which the germs are travelling from one gland to another, the entire chain is traversed, and the germs, no longer impeded by gland structure, pour themselves along the thoracic duct into the blood current, their entrance being ushered in by pyrexia (*period of syphilitic fever*), and speedily followed by a cutaneous and mucous eruption (*period of secondary symptoms*). At this stage the disease may be eradicated, or it may proceed until the various fluids and tissues of the body are each in turn affected by the virus. After a time, greatly varying in duration, the virus becomes somewhat changed in character, no longer giving rise to distinctly inflammatory symptoms, but being poured out as a diffused, or circumscribed, gummy exudation, into the various tissues, and viscera, the exudation showing little tendency to suppurate or undergo any organizations higher than that of cellular tissue (*period of tertiary symptoms*). At this stage the disease may be finally arrested, or may continue with only trifling modifications for the rest of the patient's life.

Varieties of Sore.—1. Soft Chancre. 2. Dry Papule. 3. Chancrous Erosion. 4. Indurated Chancre. 5. Mixed Chancre.

Description of the various kinds of local sore:—

Soft Chancre—Synonyms—*Non-Infecting—Chancre—Local Contagious Sore—Suppurating Chancre.*

1. *The Soft Chancre* has a crescentic or circular outline, freely suppurates, and is more or less deeply excavated. If the chancre is extending, the edges are undermined; if stationary, the edges are clean cut. The base is always soft. This sore appears as a rule within a week after infection, and generally lasts about a month. It may heal more quickly or may resist treatment, either remaining stationary, or spread sometimes slowly, at others rapidly by phagedæna; until months or even years are occupied in fruitless efforts to heal the ulcer. The pus from a soft chancre is auto-inoculable. This sore is often followed by a bubo in the groin, as a rule only one gland being affected. This glandular affection is sometimes merely sympathetic, a simple adenitis ensuing, which may or may not end in suppuration, and sometimes is due to direct conveyance of the virus along the lymphatics to the gland, in which case the gland nearly always suppurates, the resulting sore resembling the primary ulcer, and being like it auto-inoculable. The soft chancre varies in size from a split pea to a broad bean, or larger; it is often multiple, and is very rarely followed by secondary manifestations.

2. *The Dry Papule* is a rare form of primary lesion. It is a

slightly raised brownish-red papule covered with fine scales, and very much resembles a secondary syphilitic tubercle. It has generally a lengthened incubation of from thirty to fifty days. This sore is associated with basal induration terminating abruptly in the surrounding tissues. The average duration of the dry papule is two months; it is always single, and is almost invariably followed by constitutional infection.

3. *The Chancrous Erosion*—Synonyms—*Patchy Excoriation—Superficial Primary Syphilis—Chancriform Erosion.*—This lesion, which is very common, appears in the form of an abraded sore either level into the surrounding surface, or slightly raised by exudation; it is generally small and somewhat circular, at times, however, quite irregular; it secretes a little serum but no pus, and after a few days the base becomes indurated, and the glands in one groin hard and rather tender to the touch. The average period of incubation is 21 days, but it may appear at any date from the tenth to the ninetieth day after infection. The chancrous erosion is rarely dual, and never multiple; it heals in about a month, the basal induration lasting some two or three months longer, and is almost invariably followed by secondary symptoms.

4. *The Indurated Chancre*—Synonyms—*Hunterian Chancre—Infecting Chancre—Non-Suppurating Sore.*—This sore, which is about equally common with the chancrous erosion, is circular, elliptic, or irregular in shape, and varies in size from a split pea to a broad bean. It is perceptibly excavated, with hard edges, and has a cartilaginous base which extends beyond the area of the ulcer, and can be lifted up from the environing tissues. This typical syphilitic sore does not commence as an ulcer, but as a small papule, which subsequently ulcerates. The surface is glazed, or covered with a slight secretion of serum and tissue *debris*. The glands in one groin become enlarged before the basal induration disappears, and following this we almost always have secondary manifestations. It, like the former sore, has a widely varying period of incubation; the average, however, is about three weeks. It lasts as a rule about three months, but the induration continues longer, the resulting cicatrix at times remaining perceptibly indurated throughout the rest of life. The indurating chancre is rarely dual, never multiple.

5. *Mixed Sore*—Synonyms—*Chancre first soft and subsequently indurated.*—This form of sore must not be overlooked; commencing as a soft chancre, induration subsequently appears, often during the process of repair, and the subsequent local and general history is identical with that of the chancrous erosion

These, then, are the various forms of primary lesion; but before passing on it is necessary to say a word about chancres in the urethra and chancres in the female.

Chancres in the Urethra.—Although chancres may be met with in almost every part of the body—*e. g.*, I have seen one above the eyebrow—urethral chancres require special mention, because

they are specially prone to be overlooked. Chancres in the urethra may be either of the soft or hard varieties, and generally occur within the first half inch of the passage, though they may be placed much lower down, even as far back as four inches from the meatus. The symptoms vary as the sore varies; thus in case of the soft chancre, we have a puriform discharge, sometimes abundant enough to closely simulate a gonorrhœa; while in case of the hard chancre, the discharge is scanty and sanious, at times being scarcely perceptible. Both sores are painful to a certain extent when pressed between the finger and thumb, and this means of examination should always be carefully employed in determining the cause and nature of a urethral discharge. If a soft chancre is present, the hollow ulcer and the ragged edges can generally be made out; and if it be a hard sore, the diagnosis is even more easy and certain from the distinct nodule of indurated tissue around it. The endoscope might be useful in doubtful cases.

Chancres in the Female require more careful search than chancres in the male. Their common situation is the nymphæ and neighborhood, but the vagina must always be thoroughly examined, as they not only lurk here at times, but are even met with upon and within the os uteri; the lips and mouth, too, should be inspected in doubtful cases. It is almost certain that the female is liable to every form of sore which infects the male, but as yet, I believe, there is no recorded case of the dry papule having been met with as a distinct primary lesion.

Period of Incubation.—The period which elapses between the reception of the poison and the appearance of the local lesion is termed the period of incubation. As may be surmised from what has gone before, this period varies greatly, ranging from two to ninety days. The soft sore has a shorter period of incubation than any of the more generally infecting varieties of chancre. From five to ten days is the average period of incubation for the soft sore; from seventeen to thirty—twenty one being the mean—is the average for the hard sore.

There are, however, many well authenticated cases on record of much longer periods elapsing, histories being recorded of fifty, sixty, seventy, and even ninety days intervening between the date of the infection and the appearance of the ulcer; in these cases as a rule the constitutional symptoms are general and severe.

Inoculability.—The property of inoculability upon the same subject is common to all forms of the syphilitic sore, but in very different degrees; the soft sore being invariably capable of auto-inoculation, while the other kinds of primary lesion are very rarely auto-inoculable. Successful attempts at auto-inoculation have been made, however, with the indurated chancre and with the chancrous erosion, and it now appears probable that the entire difference depends upon the presence or absence of pus. When pus is present, as is always the case with the soft sore,

auto-inoculability is the rule; when pus is absent, as is generally the case with the hard sores, auto-inoculability is the exception. Moreover, as we shall see in the next paragraph when we discuss the unity of the syphilitic virus, this question of auto-inoculation is no longer so important as it was deemed when the doctrine was held that the soft auto-inoculable sore was purely a local lesion quite distinct from syphilis, and that the use of the term syphilis should be confined to the non auto-inoculable sores; viz., to the dry papule, the chancrous erosion, and the hard chancre.

Unity of Poison.—With the exception of the mixed chancre, every form of syphilitic primary lesion as a rule propagates its kind; this is especially so in the case of the soft and the hard chancres, the dry papule and the chancrous erosion, though often the direct offspring of similar lesions, are not unfrequently transmitted from certain secondary affections; *e. g.*, condylomata.

This circumstance, coupled with the fact that the soft chancre rarely infects the system, while the hard sores are generally followed by secondary symptoms, led observers to doubt the unity of the poison, some even maintaining that there was a distinct virus for each kind of sore, while most went so far as to say that there were certainly two distinct poisons; the one giving rise to the soft chancre, which was not a poison which invaded the system beyond the first inguinal gland, the other the parent of the various indurated sores which always infected the constitution at large. As knowledge ripened and syphilographers multiplied, this doctrine proved difficult to hold, if not untenable; cases occurred where sores pronounced soft chancres by competent judges were followed by constitutional symptoms; instances of the auto-inoculability of the hard sore were from time to time reported, and in spite of ingenious theories that in such cases as these we had a dual poison to deal with, grave doubts were thrown upon the validity of the doctrine of duality, doubts which became clearly manifest in the evidence given before the Admiralty Commission in 1870.

It was, I believe, my lot to reduce this vexed question to a demonstration, and prove that there is an essential unity in the syphilitic poison; for in some experiments, published in the year 1872, I succeeded in producing an auto-inoculable sore from a typical indurated chancre, and again in obtaining constitutional infection by inoculation from a freely suppurating non-indurated sore. Still though "duality is dead," it yet speaks, and furnishes us with useful hints in both prognosis and treatment. It is the very general rule for the syphilitic primary sores to breed true; the soft sore produces the soft sore, and as the virus is wholly thrown off in pus, requires no mercurial treatment from first to last; the hard sore gives rise to the hard sore, which infects the entire economy, and requires a lengthened mercurial treatment to remove its eradication from the system. A fuller discussion and explanation of these facts will be attempted when we come to speak of the pathology of syphilis.—*Medical Press and Circular.*

SUBSTITUTE FOR COD-LIVER OIL.

The *Pharmaceutische Zeitung* says that Dr. Markenot has succeeded in purifying the oil extracted from lampreys (which, in its crude form, has been long employed in Russia for industrial purposes), and thereby prepared an oil which he thinks may often be substituted with advantage for *oleum jecoris aselli.* It is said to be of a not unpleasant taste, to be easily digestible, and to have an analeptic action even superior to its rival. It also contains a larger percentage of iodine. It has somewhat the appearance of salad oil, and is not so thick as cod-liver oil, which many patients will esteem an advantage,—*Medical Press and Circular.*

CHANGES IN THE MEDULLA OBLONGATA AND SPINAL CORD IN HYDROPHOBIA.

At a recent meeting of the *Pathological Society of London*, Dr. Gowers showed a number of microscopical sections of the medulla and cord from four cases of hydrophobia. In all four cases the vessels of the gray matter were greatly distended, the distension being greatest in the medulla, near the gray nuclei in the lowest part of the fourth ventricle. In three of the cases the larger veins in this position presented aggregations of small cells within the perivascular lymphatic sheaths, sometimes in a single layer, sometimes densely packed so as to compress the vessels. In a few places these cells extend beyond the limits of the sheath. Similar cells were scattered through the tissue among the nerve-elements, and in some places, chiefly in and near the hypoglossal nuclei there were dense collections of these cells, constituting in fact "miliary abscesses." Adjacent to many vessels were areas of granular degeneration. In two of the cases many of the larger vessels, chiefly veins, contained clots, parts of which were evidently of ante-mortem formation. In one specimen the inner coat of a vein was thickened opposite the older part of a clot, and there were round cells in the perivascular sheath, within the old clot, and in the substance of the swollen inner coat. The nerve-cells presented comparatively slight changes, being merely slightly swollen and in some places granular, and surrounded here and there by granular degeneration. These changes were most intense in and about the pneumogastric, hypoglossal, and glossopharyngeal nuclei; slighter in the nuclei of the auditory, facial, and fifth nerves, and in the cord; and slighter still in the upper part of the pons. Dr. Gowers concluded by alluding to the difficult question, as to whether these vascular changes were the inital lesion in the nerve centres, or were secondary to the irritation of the nerve-elements by the blood poison. It was certain that embolism played no part in the process. The coagulation in the vessels

was not essential, while in one case the absence of cell-infiltration showed that dilatation might be the only morbid change in the vessels. On the other hand, the changes in some of the clots, in cases in which the symptoms had lasted only three days, showed that considerable vascular changes must have occurred very early in the disease.—*The Lancet*, June 9th.

NEW METHOD OF TRACHEOTOMY SPECIALLY APPLICABLE IN YOUNG CHILDREN.

Dr. J. J. Reid, of this city, advises the following method of operating: After the usual incision of the skin, and the division of the strong superficial fascia which connects the sterno-hyoid muscles, the knife is laid aside, and the next part of the operation performed by two uterine tenacula. With these the deep layers of fascia are torn and the thyroid veins are pulled aside, until the trachea is sufficiently exposed. The tenacula are then inserted into the sides of the trachea, and slight traction is made, while the tube is laid open to the desired extent with a bistoury. The wound in the trachea is thus made to gape widely, and any pieces of membrane can be removed and the tracheotomy tube easily introduced. The advantages claimed for this method of operating are that it reduces to a minimum the risk of hemorrhage, serves to fix the trachea without the danger of compression of the trachea and larynx, and facilitates the introduction of the tube.—*New York Medical Journal*, July, 1877.

ON ELEMENTARY INSTRUCTION IN PHYSIOLOGY.*

The chief ground upon which I venture to recommend that the teaching of elementary physiology should form an essential part of any organized course of instruction in matters pertaining to domestic economy, is that a knowledge of even the elements of this subject supplies those conceptions of the constitution and mode of action of the living body and of the nature of health and disease, which prepare the mind to receive instruction from sanitary science.

It is, I think, eminently desirable that the hygienist and the physician should find something in the public mind to which they can appeal; some little stock of universally acknowledged truths, which may serve as a foundation for their warnings, and predispose towards an intelligent obedience to their recommendations.

Listening to ordinary talk about health, disease, and death,

* A paper read at the Domestic Economy Congress, by Prof. Huxley, F.R.S.

one is often led to entertain a doubt whether the speakers believe that the course of natural causation runs as smoothly in the human body as elsewhere. Indications are too often obvious of a strong, though perhaps an unavowed and half unconscious, undercurrent of opinion that the phenomena of life are not only widely different in their superficial characters and in their practical importance, from other natural events; but that they do not follow in that definite order which characterises the succession of all other occurrences, and the statement of which we call a law of nature.

Hence, I think, arises the want of heartiness of belief in the value of knowledge respecting the laws of health and disease, and of the foresight and care to which knowledge is the essential preliminary, which is so often noticeable; and a corresponding laxity and carelessness in practice, the results of which are too frequently lamentable.

It is said that among the many religious sects of Russia, there is one which holds that all disease is brought about by the direct and special interference of the Deity, and which, therefore, looks with repugnance upon both preventive and curative measures as alike blasphemous interferences with the will of God. Among ourselves, the "Peculiar People" are, I believe, the only persons who hold the like doctrine in its integrity, and carry it out with logical rigor. But many of us are old enough to recollect that the administration of chloroform in assuagement of the pangs of childbirth was, at its introduction, strenuously resisted upon similar grounds.

I am not sure that the feeling, of which the doctrine to which I have referred is the full expression, does not lie at the bottom of the minds of a great many people who would yet vigorously object to give a verbal assent to the doctrine itself. However this may be, the main point is that sufficient knowledge has now been acquired of vital phenomena to justify the assertion that the notion that there is anything exceptional about these phenomena receives not a particle of support from any known fact. On the contrary, there is a vast and increasing mass of evidence that birth and death, health and disease, are as much parts of the ordinary stream of events as the rising and setting of the sun, or the changes of the moon; and that the living body is a mechanism the proper working of which we term health; its disturbance, disease; its stoppage, death. The activity of this mechanism is dependent upon many and complicated conditions, some of which are hopelessly beyond our control, while others are readily accessible and are capable of being indefinitely modified by our own actions. The business of the hygienist and of the physician is to know the range of these modifiable conditions, and how to influence them towards the maintenance of health and the prolongation of life; the business of the general public is to give an intelligent assent and a ready obedience based upon that assent, to the rules laid down for their guidance by such

experts. But an intelligent assent is an assent based upon knowledge, and the knowledge which is here in question means an acquaintance with the elements of physiology.

It is not difficult to acquire such knowledge. What is true, to a certain extent, of all the physical sciences, is eminently characteristic of physiology—the difficulty of the subject begins beyond the stage of elementary knowledge, and increases with every stage of progress. While the most highly trained and best furnished intellect may find all its resources insufficient when it strives to reach the heights and penetrate into the depths of the problems of physiology, the elementary and fundamental truths can be made clear to a child.

No one can have any difficulty in comprehending the mechanism of circulation or respiration, or the general mode of operation of the organ of vision; though the unravelling of all the minutiæ of these processes may, for the present, baffle the conjoined attacks of the most accomplished physicists, chemists, and mathematicians. To know the anatomy of the human body, with even an approximation to thoroughness, is the work of a life, but as much as is needed for a sound comprehension of elementary physiological truths may be learned in a week.

A knowledge of the elements of physiology is not only easy of acquirement, but it may be made a real and practical acquaintance with the facts, as far as it goes. The subject of study is always at hand in oneself. The principal constituents of the skeleton, and the changes of form of contracting muscles, may be felt through one's own skin. The beating of one's heart, and its connection with the pulse may be noted; the influence of the valves of one's own veins may be shown; the movements of respiration may be observed; while the wonderful phenomena of sensation afford an endless field for curious and interesting self-study. The prick of a needle will yield, in a drop of one's own blood, material for microscopic observation of phenomena which lie at the foundation of all biological conceptions; and a cold, with its concomitant coughing and sneezing, may prove the sweet uses of adversity by helping one to a clear conception of what is meant by "reflex action."

Of course, there is a limit to this physiological self-examination. But there is so close a solidarity between ourselves and our poor relations of the animal world, that our inaccessible inward parts may be supplemented by theirs. A comparative anatomist knows that a sheep's heart and lungs, or eye, must not be confounded with those of a man; but so far as the comprehension of the elementary facts of the physiology of circulation and of respiration and of vision goes, the one furnishes the needful anatomical data as well as the other.

Thus, it is quite possible to give instruction in elementary physiology in such a manner as not only to confer knowledge, which, for the reason I have mentioned, is useful in itself; but to serve the purposes of a training in accurate observation, and

in the methods of reasoning of physical science. But that is an advantage which I mention only incidentally as the present conference does not deal with education in the ordinary sense of the word.

It will not be suspected that I wish to make physiologists of all the world. It would be as reasonable to accuse an advocate of the "three R.'s" of a desire to make an orator, an author, and a mathematician of everybody. A stumbling reader, a pot-hook writer, and an arithmetician who has not got beyond the rule of three, is not a person of brilliant acquirements; but the difference between such a member af society and one who cannot either read, write or cipher, is almost inexpressible; and no one nowadays doubts the value of instruction, even if it goes no further.

The saying that a little knowledge is a dangerous thing is, to my mind a very dangerous adage. If knowledge is real and genuine, I do not believe that it is other than a very valuable possession, however infinitesimal its quantity may be. Indeed, if a little knowledge is dangerous, where is the man who has so much as to be out of danger?

If William Harvey's life-long labors had revealed to him a tenth part of what may be made sound and real knowledge to our boys and girls, he would not only have been what he was, the greatest phgsiologist of his age, but he would have loomed upon the seventeenth century as a sort of intellectual portent. Our little knowledge would have been to him a great, astounding, unlooked-for vision of scientific truth.

I really see no harm which can come of giving our children a little knowledge of physiology. But then, as I have said, the instruction must be real, based upon observation, eked out by good explanatory diagrams and models, and conveyed by a teacher whose knowledge has been acquired by study of the facts, and not the mere catechismal parrot-work which too often usurps the place of elementary teaching.

It is, I hope, unnecessary for me to give a formal contradiction to the silly fiction, which is assiduously circulated by fanatics who not only ought to know, but do know, that their assertions are untrue, that I have advocated the introduction of that experimental discipline which is absolutely indispensable to the professed physiologist, into elementary teaching.

But while I should object to any experimentation which can justly be called painful, for the purpose of elementary instruction, and while, as a member of a late Royal Commission, I gladly did my best to prevent the infliction of needless pain for any purpose, I think it is my duty to take this opportunity of expressing my regret at a condition of the law which permits a boy to troll for pike, or set lines, with live frog bait, for idle amusement; and, at the same time, lays the teacher of that boy open to the penalty of fine and imprisonment if he used the same animal for the purpose of exhibiting one of the most beautiful

and instructive of physiological spectacles, the circulation in the web of the foot. No one could undertake to affirm that a frog is not inconvenienced by being wrapped up in a wet rag, and having his toes tied out; and it cannot be denied that inconvenience is a sort of pain. But you must not inflict the least pain on a vertebrated animal for scientific purposes (though you may do a good deal in that way for gain or for sport) without due licence of the Secretary of State for the Home Department, granted under the Vivisection Act.

So it comes about, that in this present year of grace 1877, two persons may be charged with cruelty to animals. One has impaled a frog, and suffered the creature to writhe about in that condition for hours; the other has pained the animal no more than one of us would be pained by tying strings round his fingers, and keeping him in the position of a hydropathic patient. The first offender says, "I did it because I find fishing very amusing," and the magistrate bids him depart in peace; nay, probably wishes him good sport. The second pleads, "I wanted to impress a scientific truth, with a distinctness attainable in no other way, on the minds of my scholars," and the magistrate fines him five pounds.

I cannot but think that this is an anomalous and not wholly creditable state of things.—*Nature.*

GUTTA PERCHA TISSUE.

To the Editor of the Medical Record:

Sir—The drug shops now contain a preparation of gutta percha which will be found very convenient for some surgical uses.

It is rolled out in sheets about one yard wide, and as thick, or rather as thin, as fine French writing paper.

Both surfaces are perfectly smooth, of a satiny lustre, and the sheet is translucent almost to transparency. It is very cheap, much more so than oiled silk, for which it is to some extent convertible, and to which it is for some purposes superior.

It is of course perfectly pliable, and slightly ductile and elastic.

It is unaffected by the heat of the body, but softens at a heat somewhat higher. It is insoluble in water but soluble in ether, chloroform, and alcohol, and it is of course impervious to any fluid which does not dissolve it.

The uses for which I would recommend it are as a substitute for plasters of all kinds employed in wounds or lesions of the hands.

For example: a cut upon the finger may be treated by winding smoothly a narrow ribbon of this tissue around it. Two or more thicknesses may be made. A lighted match passed a little way above the surface will seal by fusion a band of this dressing and

leave a neat, light, clean, impervious cover to the wound, which will permit the hands to be placed in water. Adhesion of cut surfaces and resolution of infiltrated deposits take place very quickly and kindly.

If a broad patch of the skin is to be shielded from the air, as for example, a scalded surface or a patch of eczema, a piece of tissue somewhat larger is laid upon it and sealed in position by tracing the margin with a camel's hair pencil dipped in chloroform, precisely as we adjust a covering glass to microscope slide. Lesions thus "mounted" remain under observation, covered, but not completely hidden.

The method is to be especially commended for the antiseptic dressing of incisions.

Some experience in these several uses leads me to commend them to the general notice of the profession.—W. M. Chamberain, M.D., in *The Medical Record.*

"Ne quid nimis."

INTERNAL URETHROTOMY.

The treatment of stricture of the urethra is of such importance that any method recommended by experienced operators deserves the most careful consideration. Internal urethrotomy has of late years been advocated in this country for obstinate cases of stricture, especially by Sir H. Thompson, Mr. Berkeley Hill, and Mr. Teevan, and quite recently Dr. Otis attempted to introduce it as a treatment for gleet associated with slight narrowing of the urethra. Sir H. Thompson, in the last edition of his "Lectures on Diseases of the Urinary Organs," devotes a whole chapter to the consideration of this operation. He speaks of it as "efficient," "safe," and "certain," as giving "more lasting results than any other" treatment; and he says that out of the 200 operations which he has himself performed, he has had only one case of severe hæmorrhage, one abscess, two cases of extravasation, one death from disease of the kidneys, and one death from embolism. The operation thus favorably spoken of by Sir H. Thompson has been extensively practised at University College Hospital, and in the surgical reports of that institution we find some very valuable tables giving us full information about each case of stricture treated in the hospital. Five of these reports have been published, containing details of 217 cases, and it is from these that we have gathered the following facts.

Exclusive of cases of simple incision of a narrow meatus, internal urethrotomy has been performed 68 times: it was followed by death in four cases (5·88 per cent.); fourteen cases (20·58 per cent.) had severe rigors; perineal or penile abscess occurred eight times (11·6 per cent.); severe hæmorrhage from the urethra is noted five times, and hæmorrhage into the penis

once; cystitis occurred in four cases, pyelitis in two, surgical kidney in one, and hæmaturia in one (source of blood not stated); extravasation of urine followed once; abscess in the buttock twice; chordee twice (which is mentioned as permanent once); and epididymitis or orchitis three times. In one case of penile stricture death was due to septicæmia; in one to surgical kidney and pyelitis; in a third to pleurisy; and in the fourth to general tuberculosis, the stricture in this case being the result of tubercular disease, with contraction of the whole length of the urethra; these last three cases were strictures in the bulbous portion of the urethra. Only the first three of these deaths can be fairly attributed to the operation, and that leaves us with a mortality of 4 per cent. This long list of serious casualties and complications will make surgeons hesitate before adopting largely this operation It would seem that very few of these accidents could have been avoided; we may say that the cases of extravasation of blood and of urine were the result of too free incisions, and most probably the cases of chordee are capable of the same explanation; but we cannot say this of the five instances of hæmorrhage, of the ten abscesses, or of the deaths.

It is generally held that "the nearer a stricture is situated to the orifice of the urethra, the safer it is" to cut, but these tables make it appear that the reverse is the case. In 17 cases the operation was performed for stricture in the penile portion of the urethra, and among these were 1 death, 4 rigors, 3 cases of severe hæmorrhage, 4 abscesses, 1 case of permanent chordee, and 1 case of extravasation of urine. Among 49 cases, where the strictures cut were in the bulbous part of the urethra, there were 3 deaths, 10 rigors, 6 abscesses, 2 cases of hæmorrhage, 1 case of chordee, and 3 cases of epididymitis or orchitis. It must also be borne in mind that the latter table contains several cases in which there were strictures in the penile urethra as well as in the bulb; so that, as far as these tables can be taken as a safe guide, it appears that the operation is more dangerous in the anterior portion of the urethra, and that hæmorrhage in particular is more liable to occur. In comparing these results with those given by Sir H. Thompson, we must remember that he is speaking of the results of one method of operating—that from behind forwards, which he considers far superior to that from before backwards; but in these tables it is not stated in what way the operation was performed, and here it would have been well if further particulars had been given.

Comparing these results with those obtained by milder methods, we find that in 30 cases, in which gradual dilatation was employed, there was 1 death from pyæmia, 6 cases of rigors, 1 prostatitis, 1 cystitis, 1 orchitis, 1 abscess; and in 87 cases of rapid or continuous dilatation there were 6 deaths, 16 cases of rigors, 4 cystitis, 4 cases of surgical kidney, 2 cases of pyelitis, 2 cases of orchitis, and 1 of extravasation of urine. From this it is at once evident that the treatment by gradual dilatation is much

safer than the operation of internal urethrotomy; but the mortality from continuous dilatation is 7 per cent., as compared with 4 per cent. from urethrotomy, the deaths being due in the former cases in 4 instances to surgical kidney, in 1 to peritonitis and diseased kidney, and in 1 to septicæmia. We are able by these tables to compare the cases treated by these different methods in two ways—the size and the age of the stricture. The average age of the stricture treated by gradual dilatation is 7 years, by continuous dilatation 7·5 years, and by urethrotomy 6·6 years. Of 26 cases treated by slow dilatation the average size was 3.6; of 41, treated by rapid dilatation, it was 2·17; and of 53 which were cut it was 2·07. These measures are according to the English standard.

As to the results secured by these different methods, no very useful facts can be gathered from these tables. The size of the urethra when the patients were discharged from the hospital is given; but there is a fallacy in this, for by urethrotomy the urethra is at once incised to the required size, and the immediate results as to patency of the canal are sure to be good, whereas in the more gradual methods of treatment patients are not uncommonly made out patients before the stricture is quite dilated, the cure being completed after they have left the hospital; and accordingly we find that in 96 per cent. of those who were cut, No. 10 catheter could be passed when they left the hospital, but in only 81 per cent. of those treated by continuous dilatation, and 63 per cent. by gradual dilatation. Of the 170 cases in which the previous treatment is noted we find that 52 had had no treatment at all, 28 had had "occasional catheterism," 71 dilatation in some form methodically carried out, 9 internal urethrotomy, 6 Holt's operation, 3 external urethrotomy, and 1 caustics. It would be unsafe to draw any definite inferences from these statements as to the permanency of the results of these treatments, because internal urethrotomy is of somewhat limited application at present. It is also agreed by all that regular periodical catheterism is necessary to maintain the size of the urethra after urethrotomy as after dilatation, and it is very possible that after the more general operation greater attention is paid to this by both surgeon and patient than after the simpler mode of treatment.

In conclusion, it would appear from these tables that the milder and gentler the treatment to which the urethra is subjected the better, and that the complications following internal urethrotomy are very serious and more numerous than after treatment by any form of dilatation. We think that the higher rate of mortality after continuous dilatation is probably accidental, and would be corrected by larger number of cases, because the complications of treatment are so decidely less. This is a lesson that Sir H. Thompson has insisted on with great vigor, that the human urethra is a delicate canal, and whenever

a surgeon is operating on it in any way he should use all the care and gentleness at his command.

We think the statistical reports published by so many of the London hospitals would be greatly enhanced in value if they contained tables such as those which have furnished us with the above details, and we hope the registrars will adopt the suggestion.—*London Lancet.*

BELLADONNA IN DYSENTERY.

Dr. Smith, of Cloverdale, Cal., recommends the use of belladonna in the treatment of dysentery, and states that he has obtained more satisfactory results with it than with any other drug. He frequently gives from two to four drops of the fluid extract every one, two, or three hours, until the griping pains are relieved. The full remedial effect is in some cases not manifest until slight delirium or disturbance of vision is produced, but these symptoms disappear when the belladonna has been withheld for a few hours.—*Nashville Journal of Medicine and Surgery*, August, 1877.

BASE BALL AS AN EXERCISE.

The Louisville Medical News, speaking of the disinclination of Americans to indulge in active exercise, says base ball has utterly failed to bring out the American muscle. There is a glimmer of hope that the health-lift, which is the lazy man's gymnasium, may do something toward it, but we fear it will end at last in massage being the only exercise the American can take. We believe he can at least lie still and be rubbed.—*Boston Medical and Surgical Journal.*

CHLORATE OF POTASH IN DIPHTHERIA.

Dr. A. Seeligmüller, in the *Medical Times and Gazette* of August 25, 1877, recommends the chlorate of potash in saturated solution as a specific remedy against diphtheria. His paper concludes with the following summary of his observations:—

(1.) The chlorate of potash administered in saturated solution (five per cent.) has a specific effect on diphtheria.

(2.) It must be given in a solution of ten grammes in two hundred grammes of distilled water, without adding any syrup or any other substance to ameliorate the taste.

(3.) This solution is to be ordered to infants under three years at half a spoonful, to elder ones at a whole spoonful, every two

hours (if the malady is very grave, every hour), at first *day and night* without interruption.

(4.) This internal medication *alone* will suffice in all cases.

(5.) The saturated solution of chlorate of potash exercises (*a*) a topical action and (*b*) a general one on the diphtheritic process: (*a*) a topical one as a mild cautery, and by separating the diphtheritic pseudo-membranes from their basement membranes; (*b*) a general one, supplying the oxygen withdrawn from the blood corpuscles by bacteria, and destroying these organisms

(6.) Caution is required lest the saturated solution may act dangerously on the heart or digestion. When such symptoms occur the administration must be suspended.—*Boston Medical and Surgical Journal.*

REVIEWS AND BOOK NOTICES.

Transactions of the Mississippi State Medical Association. Tenth Annual Session, held at Grenada, April, 1877. Pp. 180.

The opening address by the President, Dr. McCormick, is briefer than such discourses usually are, but it is not to be inferred that it must be deficient in matter. He especially disclaims the need of class legislation in favor of the medical profession, justly concluding that, if physicians cannot live upon their own merits, they ought to fail.

The annual oration was delivered by Dr. B. F. Kittrell, on "The Mission of Medicine." A glance is taken at the history of medicine, to contrast its present advanced condition with the ideas and modes of the past. A plea is made for the importance of preventive medicine, and the utility of boards of health as instruments for effecting its purposes.

Dr. W. M. Compton contributes a paper on "State Boards of Health," and with greater force advocates the claims of preventive medicine upon the attention of both physicians and legislators. The practicability of obviating infectious diseases is evidenced by the control already obtained over small-pox, cholera, and yellow fever, under suitable regulations, and an estimate is made of the pecuniary damage inflicted upon Savannah by the epidemic of 1876. He indulges even in the anticipation of a National Board of Health, ripening eventually into a Department of Health, as a branch of the Government. He might add—About this time look out for the Millenium.

Dr. S. D. V. Hill occupies 14 pages with an essay on "Puerperal Fever." He makes a distinction between puerperal septicæmia and pyæmia, and inclines to the bacterium theory in connection with the former, which is certainly supported by the palpably infectious nature of the disease.

Dr. P. F. Whitehead advocates the use of veratrum viride in puerperal convulsions. He administers Norwood's tincture in 5 to 8 drop doses hypodermically, and, when his patient has become pulseless, restores her to life by whiskey administered in the same way. This reminds us of the country doctor who had discovered a specific for fits. He was thus able to cure any disease, by first throwing his patient into fits, and then administering his specific.

Dr. Hill relates four cases, to illustrate the advisability of immediate operation for laceration of the perineum in labor.

Dr. C. A. Rice advocates the persevering resort to Sylvester's method, in the suspension of respiration from chloroform, and relates the successful treatment of a case in this manner, after swallowing 3 to 5 ounces of chloroform. It was necessary to resort to tracheotomy, and to continue the artificial respiration for 6 hours. The anæsthesia lasted in all 21 hours.

Dr. J. E. Halbert recommends the use of ergot in pneumonia and pleurisy, and believes that in his hands the remedy has actually aborted the disease. He does not rely solely on this drug, and observes that the condition of pregnancy renders it inadmissible.

Dr. J. C. Hall advocates the use of tincture of iodine for that epidemic form of dysentery found in warm and malarious localities. He gives 20 to 30 drops, diluted, every 2 or 3 hours, until the dysenteric symptoms yield.

Dr. Price relates the cure of an inveterate case of vesico vaginal fistula, in which the urethra had become obliterated from disease. The preparatory step of the operation was to restore this canal by puncture and retention of a catheter in the passage for two or three weeks.

Forty-five pages are devoted to a Surgical History of Mississippi, by Dr W. W. Hall, consisting chiefly of the relation of remarkable operations.

On the whole, we feel bound to pronounce these papers very creditable to our professional neighbors. Their State organization has produced a volume which compares very favorably with

those emanating from much older bodies, and their work ought to excite among the profession of Louisiana a spirit of emulation, the first fruit of which would be the formation of a State medical organization.

Transactions of the Medical Association of the State of Alabama. Pp. 191.

The thirtieth session was held at Birmingham, April 10th, 11th and 12th, 1877.

Among the most noteworthy facts in relation to the Alabama Medical Association, are its having been constituted the State Board of Health by act of the Legislature in 1875, and in 1877 its being charged with the duty of examining and licensing new candidates for the practice of medicine in the State. Those already in practice are not subject to the examination. Individuals proposing to practice any irregular system are examined only in anatomy, physiology, chemistry, and the mechanism of labor; while those proposing to become regular practitioners must pass in all the branches of a medical education. The Board of Censors of the State Society, and a similar board of the several County Societies, are constituted the authorized Board of Medical examiners. The State Association have decided that licenses to practice must emanate from the subordinate County Societies (which are empowered to examine only those in possession of a medical diploma), including those who have passed the examination before the State Board of Censors, who alone are empowered to examine men not in possession of a diploma from some recognized medical college. It has also been decided that persons proposing to become students of medicine must pass an examination on their general preliminary education before the Board of Censors of some County Society. The law provides that those attempting to practice medicine without complying with the foregoing conditions, shall be liable to fine or imprisonment.

It is evident that this plan, honestly and thoroughly carried out, will have the early effect to suppress quackery, and will gradually elevate the standard of professional qualifications. Its success will depend chiefly on the fidelity of the several medical organizations throughout the State, which time alone can prove.

The President's address is devoted to the advocacy of several

important measures, among which may be mentioned the formation of county medical societies; the cultivation of the medical history of the State, including biography; the adoption of a uniform system of weights and measures, and meteorological and statistical records, and of an international nomenclature of diseases; the encouragement of home education in all grades and branches.

Dr. Fournier, in the annual oration, discourses on the abuses and medical uses of alcohol, and does justice to both branches of his subject. The usual course of those who declaim about the abuse of alcoholic beverages, is to totally ignore or deny its property of developing force in the system, but Dr. F. has the candor and breadth of understanding to survey the whole ground.

Dr. W. H. Anderson contributes a biographical sketch of the late Prof. J. C. Nott, "The Old Roman" of the profession during his later years at Mobile.

Dr. Jerome Cochran contributes an able paper on Yellow Fever in Relation to its Cause. Several theories on its causation are briefly considered and rejected, such as its local origin on shipboard in some manner never explained, its endemic malarial origin, etc. The germ theory, so-called, is afterwards discussed and adopted. The germs, in his opinion, may be reproduced both in the human organism and without it, under favorable circumstances.

Dr. J. S. Weatherly advocates the repression of syphilis, not only through the means exercised under the "Contagious Diseases Act" of Great Britain, which have reference only to prostitutes, but also by the enforced isolation of all subjects of syphilis. Such a system could never be put in practice under a government like ours, and few people would agree that the physical relief would be worth the political cost.

Several other short papers follow, which need no particular notice here. The present volume falls short of its immediate predecessors both in quantity and quality of its contents.

Transactions of the Medical Society of New Jersey, 1877. Pp. 267.

The only matter of general interest observed in this volume is an able paper, by Dr. E. J. Marsh, on Hay Fever, or Pollen Poisoning. Being unusually susceptible to the cause of this

complaint, he has investigated it carefully, and believes that it is to be found chiefly in the pollen of the rag-weed, a plant of wide distribution and luxuriant growth. Several other plants of the Artemisia family are found to possess a similar property, but in less degree.

Transactions of the Medical and Chirurgical Faculty of Maryland, at its Seventy ninth Annual Session, held at Baltimore, April, 1877. Pp. 190.

The address of the President, Dr. Christopher Johnston, is devoted chiefly to the discussion of the important topics affecting the rights of medical men when summoned as witnesses in courts of justice, viz., the sacredness of confidential communications from patients under professional treatment, and the position of medical experts. In the State of New York, medical men are forbidden to give such information in court without the express consent of their patients, and Dr. C. very properly pleads for a similar provision by law in Maryland. He also advocates strongly a legal definition of the right of medical experts to demand special fees for service in the interest of justice. Undoubtedly this is no more than reasonable and just, but there arises a difficulty in furnishing a suitable remuneration without biassing the witness in favor of one or other of the litigants. It is customary for the party calling the expert to pay him for his services, and it is altogether human for one to lean in his judgment towards the party who employs him. Thus far, it has been found that even a medical training fails to elevate the expert to a judicial view of a case, in place of a partisan view, and a different plan of obtaining such testimony ought to be devised. It occurs to us that the court should select the experts, on application of the legal counsel, and that their fees should be provided for in like manner as the ordinary costs of court.

Dr. S. Weir Mitchell gave the annual oration, on matters connected with Therapeutics. Drawing upon his extended personal experience, he mentions some remarkable cures: for instance, of obstinate cases of skin disease and of syphilis by heroic and repeated venesection; and of excessive and prolonged debility, with emaciation, by absolute rest in bed accompanied by *massage* of the muscles.

We find the highly commendable exception to the prevailing

rule, that the committees appointed to report in various sections have discharged their duty with fidelity and ability. By giving a *résumé* of progress in the different branches of our science and art, the interest and usefulness of the organization are greatly enhanced, and a volume is produced which contributes something more than an exhibition of mutual admiration or insipid egotism.

Transactions of the Medical Association of Georgia. Twenty-eighth Annual Session. 1877. Pp. 198.

The President, Dr. Robert Battey, gives an able and interesting address on the subject of Rest. The annual oration, by Dr. J. S. Todd, is upon the subject of Medical Superstitions and the Influence of Mind over Body. We smile at the credulity of our predecessors of no ancient day, but would it not be well to hope that our successors may regard our beliefs rather with commiseration than ridicule?

About twenty papers follow, mostly of a clinical nature, and brief.

On the subject of Yellow Fever at Savannah in 1876, Dr. LeHardy promises a full account, and simply expresses his opinion of "the utter futility of a quarantine." Here we think differently of a quarantine system, knowing that cases have been arrested at two of the approaches to the city this year, while no case has originated in the city.

Dr. Leitner treats Carbuncle by repeated application of the cupping-glass In the early stage he precedes the application by free scarifications.

This volume is characterized rather by the number than the length and value of the contributions.

Transactions of the Medical Society of the State of California during the years 1876 *and* 1877. Pp. 214.

The volume contains twenty-one articles on medical subjects, besides other routine matter. There are reports on several branches of medicine, containing much clinical matter. Dr. P. Chamberlain is a strong advocate of the frequent use of the obstetrical forceps, and shows the advantage of using them in

about one sixth of the cases of labor, over their use in one case of more than seven hundred, according to the recommendation of some of the older writers.

Dr. A. H. Agard, instead of removing the nail, wholly or partially, for ingrowing nail, prefers to cut away merely the fleshy portion beyond the edge of the nail. If effectual permanently, this is far easier and less painful than evulsion of the nail and dissection of the matrix.

On the subject of Medical Education, Dr. J. M. Browne commends the system of Harvard University, and recommends its imitation in California, with the pre-requisite of a salaried faculty.

Dr. Montgomery makes an elaborate report on Public Hygiene and State Medicine. The disposal of the sewage of cities receives a large share of attention, and the two principal methods of utilizing it are discussed, its application directly to growing crops, and its desiccation to form a solid fertilizer. The great obstacle, of course, is the expense of appliances for carrying out the work by either method.

Dr. Oatman relates cases of puerperal eclampsia successfully treated with veratrum viride. The action of the drug closely resembles that of bleeding *ad deliquium animi*, but is preferable, inasmuch as alcoholic stimulants revive the failing circulation.

Transactions of the Medical Society of the State of West Virginia, 1877. Pp. 96.

The address of the President, Dr. E. A. Hildreth, takes up a number of points of interest and importance to his State; among which the most prominent are the formation of local medical societies, the study of the meteorology, the medical botany, the geology and the mineral springs of the State, the establishment of a State board of health, and the collection of vital statistics. From the imperfect system at present in operation, he deduces from the records of 25 counties, in 1875, a mortality of 10.12 per 1000 of population, with a birth-rate of 43.60. As the population of West Virginia is not increasing at the rate indicated by a comparison between births and deaths, it is evident that there must be a large emigration from its borders.

Dr. C. Shriver, under the head of new Surgical remedies, men-

tions the ingenious suggestion of a British surgeon for the treatment of aneurism by compressing the artery both above and below the sac, withdrawing the blood from the sac by aspiration, and then filling it with liquified spermaceti or stearin. These substances quickly solidify, and in a few days can be removed, after the formation of a firm clot on both sides.

Drs. Hupp and Frissel relate cases illustrating the importance of looking out for the existence of congenital phymosis and adherent prepuce in male children affected with unusual or obstinate nervous affections.

Dr. S L. Jepson sustains the long-recognized physiological connection between ovulation and menstruation, though he acknowledges the fact that either may occur exceptionally without the other. Thus ovulation may precede the appearance of menstruation, and the latter may continue, through the force of habit, after the cessation of the former. The occurrence of impregnation during the intermenstrual period is explained by the ascent of the spermatozoa through the fallopian tubes and their survival until the subsequent maturation of an ovum. On the whole, Dr. J. maintains his thesis very ably.

Transactions of the Medical Association of the State of Missouri, at its Eleventh Annual Session, 1877. Pp. 81.

The address of the President, Dr. J. W. Trader, touches on several important topics: on Preventive Medicine, to which end he advocates establishment of a State Board of Health; on the Social Evil, for which he offers no remedy; on Medical Education, for the elevation or which he recommends a board of medical examiners, without invoking the aid of legislation. In the event that a practitioner declines to submit to the examination, we are not informed by Dr. T. what the board of examiners, or approved members of the profession, or the public at large, would do about it. Probably the first two categories would take counsel of Dogberry, and let him alone, thanking God that they were rid of the company of an arrant knave; the last would be governed by their convenience or caprice, and probably get as good service as they pay for.

Dr. R. M. Higgins, on the subject of Animal Vaccination, replies to two objections, viz., its liability to fail, and its extreme

severity when successful. Testimony is adduced of the superiority of the bovine over humanized virus in respect to certainty of result. On this point we can remark, that the physicians of New Orleans generally obtain surer results with the latter, though they find no reason to complain of the severity in action of the former.

Dr. G. W. Broome relates a case, illustrated with wood-cuts, of Subcutaneous Division of the Femur at the junction of the neck with the shaft, for anchylosis of the joint. The result was so favorable as to relieve the affected limb from overriding the other, and to restore partial motion by an artificial joint.

Several other papers follow, the chief merit of which is their brevity, as they add little or nothing to our previous stock of knowledge.

Transactions of the Kentucky State Medical Society. Twenty-second Annual Convention, held at Louisville, April, 1877. Pp. 217.

As usual in such published proceedings, the address of the president follows the minutes; but in this case the address would obtain as little interest with readers outside the State as the minutes themselves.

Dr. L. P. Yandell is strongly in favor of the use of anæsthetics in parturition. He believes that they are without danger to life and do not retard labor. Admitting that chloroform may induce post-partum hæmorrhage, he claims that this may be counteracted by the timely use of ergot.

Dr. John A. Octerlony contributes a long article on Cholelithiasis, which is a fair exposition of what is now known on that subject.

Dr. L. S. McMurtry makes the report on Epidemics, in which scarlatina figures with greatest prominence. In regard to treatment, it is remarked that cold baths, for rapid lowering of temperature, have found less favor than tepid and cool baths; and that salicylic acid has given no evidence of value.

Dr. L. P. Yandell, Jr., in the report on Materia Medica, touches lightly on a variety of remedies, mostly of recent date. He has a better opinion of the efficacy of salicylic acid in acute rheumatism than most of those who have given it trial, and recommends milk as the best vehicle.

An excellent article on the Pathology and Treatment of Sprains

is contributed by Dr. Richard O. Cowling. In general, he recommends the immobilization of the joint during the acute stage. In chronic cases, passive motion, *massage*, and sometimes violent movements to break up adhesions, are found useful.

Dr. L. P. Yandell, Jr., reports on Dermatology, in which syphilis occupies the most prominent part. He speaks very hopefully of a thorough cure of this disease, under prolonged treatment, but does not undertake to advise syphilitic subjects to presume on marriage; and adds that it would be safer and better for the race, if consumptives, rheumatics and epileptics also could be prevented from procreating.

Dr. W. Talbot Owen undertakes to demolish Dr. Ely McClellan, for advocating measures of prevention deduced from those ideas of the nature and mode of propagation of cholera now most approved among medical men. The gist of Dr. O.'s notions may be gathered from his charge of Dr. McClellan with two fallacies, to-wit, (1) that cholera is portable; (2) his denial that malaria is a cause of cholera. Dr. O. seems to base the malarial nature of cholera on the resemblances which it presents to ague in the algid surface, along with elevation of internal temperature. Nothing is said of the effect of quinine in cholera, which others have found to be a nullity. As a specimen of unadulterated absurdity in idea and style, the production may challenge comparison with any to be found in the whole range of State-Association reports for the year.

Dr. Thos. J. Griffiths, of U. S. Mar. Hosp. Service, in a report on his branch of service, recommends the examination of seamen both before and after voyages, and their isolation if found infected with syphilis. This measure of prevention would undoubtedly be useful, conjoined with a similar surveillance of prostitutes; but alone would have little efficacy.

Dr. John L. Cook, on Physiological Therapeutics in Fever, advocates the use of quinine, ergot, belladonna and the cold bath, to reduce febrile heat. His idea is, that the body undergoes too rapid combustion and waste by increase of temperature; and he would supplement their action by the use of arterial sedatives. If he could prove that the duration of a continued fever could be abridged by such medication, or its course ameliorated, his plan would have some practical value. We incline to the opinion that continued fevers and the exanthemata, to which his plan of treatment is specially directed, are self-

limited, that the fever is due to the labor of nature in expelling a specific poison from the system, and that our efforts, in most cases, need go no farther than the comfort of the patient requires. The reduction of cardiac exertion and of temperature is not likely to promote the elimination of the poison, and should be limited to the requirements of the patient's comfort.

His ideas on the nature of endemic and epidemic fevers are curious, if not original. For instance: "Any diseases which originate and are confined to special localities are not epidemic. Diseases arrested by frosts are not epidemic, but endemic." He naturally concludes, therefore, that yellow fever is endemic, and adds: "Moreover, as it is indigenous to special localities which have free communication with the world, without importing the disease, that does away with its contagious theory." * * * "And from these facts it can be truthfully stated that a contagious disease never becomes epidemic; for no one is so rash and absurd as to hold that the whole atmosphere could be as thoroughly contaminated as the room of a sick patient is with contagious effluvia, which state of affairs would be necessary to produce an epidemic of any contagious disorder." Evidently the author of the above quotations has misdirected his transcendent talents, in applying himself to medicine instead of theology.

Several other short articles follow, mostly on special branches of practice, which must be passed over for want of space.

Transactions of the Texas State Medical Association. Ninth Annual Session, 1877. Pp. 242.

It appears from the report of the Committee on Legislation, that the law regulating the practice of medicine in Texas is not working satisfactorily, and efforts are being made for its revision. At present the criterion is the possession of a medical diploma, and it is proposed to substitute an actual examination on specified branches of medicine, by a committee of physicians appointed by the district court in different circuits throughout the State. Such a plan, thoroughly carried out, would undoubtedly be more efficient than the one at present in force.

The President's address, on Medical Education, presents nothing new or interesting.

In a well-written essay, having for its title Preventive Medicine, Dr. Richard H. L. Bibb seems hardly to have reached the subject proper; that is to say, the prevention of disease; but he makes some very judicious remarks on the most important factors which enter into the production of morbid action. These are classified under such heads as Hereditary Influences, Social Excesses and Immorality, Defective Sanitation, and Specific Germs.

Dr. Eugene Palmer gives the report of the Committee on Climatology, in which no reference is made to Texas in particular, contrary to what might have been expected by a stranger, or perhaps intended in the creation of such committee.

Dr. A. E. Carothers, in discussing the Causation of Calculous Disease, ascribes less importance to the character and constituents of the urine than to the condition of the urinary passages.

Dr. W. J. Burt reports a case of congenital absence of the uterus, in the person of a lady twenty years old and two years married. Of course she had never menstruated, and no periodical molimen had been observed. Although she had long been treated for amenorrhœa, Dr. B. was the first to discover the cause of the trouble.

The late Dr. Geo. W. Peete receives a fitting memorial from Dr. Pinckney, U. S. N. Dr. Peete was the ablest and most efficient sanitarian of his adopted State, and during the great equinoctial storm of 1875, at Galveston, sacrificed his life by an act of heroic self-denial in favor of others, whose lives bore no comparison in value with his own. A boat had come to rescue him from the flood; he resigned it to the use of a man and his wife, who were saved, while his opportunity never returned. Alas for the consistency of Christian people! Britain and America exalt in their insignia the lion and the eagle, emblems of destruction and rapacity, and pay their highest honors to destroyers of the race, while worshipping as divine the Saviour of mankind. For those who daily risk life by facing pestilence, in simple obedience to professional duty, none of this world's honor and little of its wealth. So when Surgeon Llewellyn sank with the Alabama, giving his chance of rescue to an obscure shipmate, and Peete in like manner resigned his life for others who had no particular claim on his sympathies, a few paragraphs here and there are the only monument to a heroism which deserves to be embalmed in the memory of men. S. S. H.

Walsh's Physician's Handy Ledger, a companion to Walsh's Physician's Call Book and Tablet. Published by Ralph Walsh, M.D., 326 C Street Northwest, Washington, D. C. For sale in New Orleans by A. P. Harrington, Bookseller, 149 Canal street.

This book is precisely adapted to the practitioner's wants. There is a simplicity and method in its arrangement which enable the physician to keep his accounts in such shape that the gross amount and items may be promptly obtained, and with the least possible expenditure of time and trouble in book-keeping.

EDITORIAL.

Medical Journals versus Dr. C. G. Polk.

Some of our exchanges are extremely severe and even personally vituperative in respect to this personage. In the following remarks we shall endeavor to avoid personalities, and to place our readers in possession of such facts and allegations as have been brought into the controversy by the parties thereto.

During the summer of the present year, a long and carefully done up manuscript was received for publication in the original department of N. O. Med. and Surg. Journal. The article was placed unread among other papers accepted for publication. By arrangement for division of labors in the Editorial corps of the Journal, the original matter is placed under control of the senior Editor. While the senior Editor was enjoying a recreation away from the city, and his colleagues were taking his work upon their own shoulders, they supposed that this paper had been read and approved, and placed it in the printer's hands. Whatever blame may be properly attached to its publication belongs therefore to the senior Editor, and not a whit of it to his colleagues. But further than this, the senior Editor does not design to assert that the paper might not have been admitted by his own personal act, if he had been at home. The editors of medical perodicals (at least those outside of those pious centres of civilization where medical institutions, either legally constituted, or composed in part of straw effigies, make open traffic of

diplomas), are liable to fall into error by publishing papers either quackish in character, or the productions of quackish authors. If Dr. Polk belongs to this class, and has been clever enough to over-reach us, we can only say, so be it; it is not the first time this has happened to us—it may not be the last. We are most especially open to assaults of this character from the fellow-citizens of Dr. Polk in that great city from whence his lucubrations emanate. Surely in a medical sense, if a picture of Nazareth, or of any other place under its bad repute, was stamped upon a coin in our possession, we should look for Philadelphia on the obverse, and should continue to exclaim, can any evil lurk beneath so goodly a view?

But while we make this confession of intentions to bear with becoming humility the wrongs which quack writers and advertisers may succeed in putting upon us, and while we even design to go so far as to allow Dr. Polk to be heard through our columns, he in turn must bear with us if certain points in the following correspondence furnish additional weapons to those of his enemies, who are evidently ready to resort to their boots to assist any disgraced brother down a declivity. Here is the most vigorous and pointed assault upon Dr. Polk's standing and conduct:

The question has been asked us, "Who is Dr. C. G. Polk, and what is his record?"

"The regular medical profession, to the decision of which I am ever ready to submit" (Polk in *Ph. Medical Times*), will find Dr. Polk's name as Professor of Surgery in the Eclectic Medical College of Pennsylvania, a branch of the American University of Philadelphia; and Professor in the University College of Pharmacy, another branch of the same institution. Last year a friend of ours went to Europe, and on the same vessel was a Frenchman who was taking home with him a diploma from the American University of Philadelphia, constituting him a doctor of medicine. This man said that he had not been in the United States one month. Our friend wrote to the American ambassador at Paris on the subject. The diploma was shown to many of the passengers on the vessel, some of whom reside in this city.

In March, 1875, the *Druggists' Circular* had a short article from Dr. Polk, headed "Tribasic Hypophosphite of Olein and Glycerine," of which he claimed to be the discoverer. This whole article was stolen from Dr. Percy's "Prize Essay of the *Am. Med. Ass*," on "Phosphorus," published in 1872. In the October number of the same journal he has another article

headed "Hypophosphite of Olein," which again is nothing but a plagiarism from Percy's essay. In this article he disclaims ever having heard of Percy's discoveries till the present time. We understand that over ten thousand copies of Dr. Percy's essay on phosphorus were presented to the profession. Is it to be presumed that an *eminent* professor of a college could remain ignorant of so widely-disseminated a book, and one which contained all that the *eminent* professor had written upon or was seeking? This *innocent* denial is evidently very weak; nobody will believe him.

In *New Remedies*, for Nov., 1876, Dr. Polk changes the name, and again burrows from Percy's small pamphlet sent to the profession the name "Protagon," but acknowledges it to be the same substance as that before written on. This he now claims to have used "over a period of eighteen years," thus robbing Churchill of his discovery of the value of hypophosphites in phthisis and kindred diseases.

In all that he has since written, any one who has read Percy's essay can see from whence he derives what little knowledge he possesses. In *The Medical Record* Percy "coins" a new word: "Phosphoid." Polk steals it the next week.

In the *Nashville Journal of Medicine and Surgery*, vol. xx,, p. 108, he claims to have used these brain hypophosphites in May, 1859, and says that a doctor of his acquaintance can give his experience with 'Glycerite of Kephaline," of Polk's manufactory, in August, 1872. The world-renowned and indefatigable chemist, Thudichum, in 1874, published his researches on the "Chemical Constitution of the Brain;" he gives an elaborate analysis of kephaline, and says that "it is now described for the first time in brain matter." Truly the discoveries of Churchill, of Percy, of Thudichum, are as nothing compared to the discoveries of this *eminent* professor of a college. He has learned, and taught, how quickly to gain that which other people are long in acquiring, and work diligently for. Discoveries and diplomas are not worth striving for, when they can be got by shorter means.

The chemical blunders and errors made by Dr. Polk in his writings in the journals before us would be worth noticing if made by anybody else, but errors need not degenerate into falsehoods.

We have taken the trouble to get an analysis made of his so-called "Glycerite of Kephaline," and it does not in any manner answer the tests and re-agents given by Thudichum. We have tried it, and it has failed in our hands to do the slightest good.

Dr. Polk has tried dishonestly to use our journal for his own advertisment; we do not intend tamely to submit to such insults, unless it would widely benefit the profession. We learn, upon inquiry amongst our fellow-laborers, that Dr. Polk's articles have been refused admission into several respectable journals: they

probably know why.—*The Hospital Gazette and Archives of Clinical Surgery.*

The following letter is a reply from Dr. Polk, not strictly verbatim, however, since some personalities are omitted:

PHILADELPHIA, PA., Nov. 7th, 1877.

Mr. Editor.—Permit me state that nearly all the statements made in an editorial in the *Hospital Gazette*, Oct. 15th, evidently written by Dr. Samuel R. Percy, the proprietor of the copyrighted nostrum, "Vitalized Phosphates," are entirely void of truth, with a single exception, namely, that I have several times modified the formula for my glycerite of brain hypophosphites—the "Glycerite of Kephaline"—and if I can still further improve it, I shall do so.

In reply to other charges, I say I am not connected with any college of medicine or pharmacy, regular, or irregular, but am practising the regular system of medicine, and in accordance with the code of ethics of the American Medical Association. The charge that I confound protagon and glycerite of kephaline as the same thing, will be recognized as an unjustifiable misstatement by the readers of the New Orleans Medical and Surgical Journal. (See last of page 377, November number).

My capacity for original investigation will not be estimated by personal slander on the one side, or any asserted claim of mine on the other; but from my numerous papers on medicine, and on pharmacy, for which I have received many tokens of appreciation, from State and county medical and pharmaceutical associations. Dr. Percy is anxious to resurrect his "Oleo Hypophosphite," the dear child of his Prize Essay, "Phosphorus," to which I have no objection. This preparation he claims was at one time quite extensively used. Some two years ago H. E. Ashmead, a pharmacist of this city, tried to introduce a similar preparation, made after my formula, but he failed. The profession wrote its epitaph—mene, mene tekel upharsin. The preparation is dead and buried.

I have told plainly just what is the "Glycerite of Kephaline;" published the whole process in the October number of the Druggists' Circular, but I am not annoyed even if I have not conformed to the chemical nomenclature of Thudichum. I am not so much interested in technical chemistry as I am in the

production of a valuable therapeutical agent, and a presentation of a correct aetiology of Tuberculosis.

CHAS. G. POLK, M.D.,
Alumnus of the University of New York, 1858.

Before dismissing this subject and all parties concerned, from any further notice either for the present or the future, we shall be pardoned for the gentlest possible allusion to Dr. Polk's business relations with our JOURNAL. While as a personage laying claims to rank and originality in the profession, he has character and corporeality enough to afford a target for numerous fiercely-thrown shafts, in business circles he appears to be a myth; at all events, the following correspondence justifies such a conclusion.

OFFICE OF THE N. O. MEDICAL AND SURGICAL JOURNAL, UNIVERSITY BUILDING, COR. BARONNE AND COMMON.

New Orleans, Nov. 8th, 1877.

Richardson & Co., Wholesale Druggists, St. Louis, Mo.:

Gentlemen—A letter from Dr. Polk instructed us to advertise Glycerite of Kephaline in the October, November and December Nos. of N. O. Med. and Surg. Journal. We send you a specimen copy. Dr. P. instructed us to call on you for payment of bill, which is ten dollars ($10 00). Please remit at once.

Very respectfully, yours,

DRS. BEMISS, WATKINS & PRATT.

Dear Sirs—We know nothing about the enclosed or Dr. Polk. If you do, should be pleased to know *who he is and what he is.* Have never seen the man, and know nothing about him, and his advertising us as his agents is causing us much annoyance.

Yours truly,

RICHARDSON & CO.

Texas Preserved Meats.

We have used in Charity Hospital about one dozen cans of beef, beef tongues, and turtle, put up in Texas, and sold by E. Pilsbury, Agent, Carondelet street. They were given to patients

suffering from chronic diarrhœa, from Pneumonia, and from malarial cachexia. They have proved to be both agreeable and restorative to the patients who took them.

State Medical Association.

The attention of our readers is earnestly invited to the succeeding resolutions and calls for a convention of the medical profession of Louisiana for the purpose of organizing a State Medical Society. The calls issue from associations of earnest workers, who have coöperated sufficiently long and actively to have developed the advantages of such organizations; they now desire that the field of coöperative labor shall be extended so as to include the whole State. The Shreveport Medical Society long ago urged that some steps be taken to organize a State Society; so have many individual members of the profession in various parishes, through letters addressed to the Editors of this JOURNAL. The date fixed for the meeting is believed to be as likely to prove a convenient one to the profession as any other which could be named. Many members of the profession residing in the city will cordially join their brethren on assemblage here, and aid them in this matter, and we entreat the profession throughout the State and city not to allow this occasion to pass without a successful result, to secure which only a small outlay of time and energy are now required.

PLAQUEMINES PARISH, LA., Nov. 10th, 1877.

Extract from Minutes of Meeting held May 22d, 1876. * * *

Resolved, That believing the dignity, usefulness, education and interests of the medical profession are elevated through the influence of medical societies, we therefore suggest to our professional brethren of this State the organization of such societies in the different parishes.

Resolved, That consequent upon the formation of a sufficient number of such societies, we propose the organization of a *State Medical Association.*

Resolved, That we respectfully invite response to these resolutions from other medical societies which may exist, and from

members of the medical profession resident in districts where such do not exist.

Extract from Minutes of November 5th, 1877.

The above resolutions were re-adopted, together with the following.

Resolved, That we call upon the various medical associations throughout the State, and upon all regular physicians interested in this subject, who are not members of any association, to send delegates to New Orleans, to meet at the Medical Department of the University of Louisiana, at 12 o'clock M., on Monday, January 14th, 1878, for the purpose of holding a convention preliminary to organizing a State Medical Association.

J. B. Wilkinson, M.D.,
D. R. Fox, M.D.,
Geo. A. B. Hays, M.D.,
Committee.

The call from the Shreveport Medical Society has not been published heretofore, and we now add its influence to that of the Plaquemines Parish Association.

Shreveport Medical Society, May 14th, 1877.

Extract * * * *

Whereas, it is the sense of this Society that the organization of a State Medical Association would tend more thoroughly to disseminate and usefully to apply medical knowledge, more effectually to promote fraternal feeling, better to ensure harmony of action and to exalt and maintain the dignity of the profession within our boundaries; and, whereas, we regard the City of New Orleans as the medical center of the State and for this reason the source from which the beginning should emanate; therefore, be it

Resolved, 1st, That we respectfully ask the profession in the City of New Orleans to consider favorably the proposition as above indicated, and, if in their judgment deemed expedient, to issue a circular letter calling a convention, or to adopt any other means they may think most efficient, looking to the early organization of such State Medical Association.

Resolved, 2d, That pursuant to this end, this preamble and

resolutions, accompanied by an appropriate letter from the Corresponding Secretary, be forwarded to Drs. Bemiss, Bruns, Joseph Jones, Brickell, Chaillé, Choppin and others, in the City of New Orleans. * * * *

The above is a true extract from the minutes of Shreveport Medical Society, at its late regular meeting.

R. A. Gay, *President.*

A. A. Lyon, *Secretary.*

NECROLOGY.

Prof. Paul F. Eve, M.D., Nashville, Tenn.

Professor Paul Fitzsimmons Eve, the distinguished surgeon, died suddenly, while in attendance upon a patient, November 3d, aged seventy-one years. He was born June 26, 1806, near Augusta, Georgia; graduated at the University of Georgia in 1826; as M.D. at the University of Pennsylvania in 1828, and was a student several years in Europe. He served as a volunteer surgeon in the Polish revolution in 1831, and received therefor the Golden Cross of Honor of Poland that year. He became Professor of Surgery in the Medical College of Georgia in 1832, in the Louisville University in 1849, in the Nashville University in 1850, and in the Missouri Medical College, St. Louis, in 1868. In 1870 he accepted the chair of Operative and Clinical Surgery in the University of Nashville, which position he held at the time of his death. As a representative man for the South he was, in 1857, chosen President of the American Medical Association. During the rebellion he served as surgeon in the Confederate Army, and for the greater part of his professional career was identified, directly or indirectly, with medical journalism in his section of country. A hard worker in his profession, his strictly methodical and temperate habits enabled him to carry his burden of duties up to the very threshold of death, and lay them down to enter at once into his eternal rest. Prof. Eve, as a surgeon, will be best remembered in connection with his remarkable successes as a lithotomotist. Of ninety-two bilateral operations for stone eight only terminated fatally. His last notable contribution to medical literature was his address on Surgery at the International Medical Congress in 1876.

Dr. Eve was by faith a Presbyterian, and an ardent supporter of church interests.

He was twice married. First, in 1832, to Miss Sarah Louisa Twiggs, who died April 10, 1851. He married his second wife, Miss Sarah Ann Duncan, of South Carolina, January 13, 1852. She now lives to mourn his loss. He also leaves three sons and two daughters.—*Medical Record.*

METEOROLOGICAL AND MORTALITY REPORTS.

Meteorological Report for New Orleans—October.

Day of Month.	Temperature.			Mean Barometer Daily.	Relative Humidity—Daily.	Rain fall—inches
	Maximum.	Minimum.	Range.			
1	82	71	76.5	29.763	64.00	.00
2	81	73.5	77.25	29.640	18.00	.05
3	83	72	77.5	29.701	74 66	.00
4	84	72	78	29.919	67.66	.00
5	73	61	67	30.112	44.33	.00
6	75	60	67.5	30.218	57.33	.00
7	81	66	73.5	30.087	78 33	.10
8	74	64	69	30 118	61.33	.00
9	74	60	67	30.175	57.00	.00
10	77	62	69.5	30 188	62.00	.00
11	78	65	71.5	30.164	60 66	.00
12	77	62	69.5	30.121	67 33	.00
13	79	64	71.5	30.047	79.00	.00
14	81	68	74.5	30.064	82.33	.00
15	81	71	76	30.070	87.33	.02
16	80	72	76	30.029	86 00	.02
17	82	69	75.5	29.942	86.33	.45
18	77	73	75	29.835	90.00	.23
19	76	67	71.5	29.906	78.33	.60
20	70	59	64.5	29.995	58.33	.00
21	62	53	57.5	30.043	67.00	.00
22	62	55	58 5	30.156	64 00	.00
23	63	56	59.5	30.209	69.33	.00
24	72	56	64	30.105	77.33	.00
25	71	64	67.5	29 883	91.66	2.53
26	73	64	68.5	29.827	81.66	.91
27	75	61	68	29.998	78.00	.00
28	78	62	70	30.032	87.66	.24
29	77	64	73	30 018	73.00	.34
30	76	67	71.5	29.968	71.33	3.52
31	72	67	69.5	29.995	84.66	.02
Mean..	76	64.7	73.41	30.011	71.10	Total. 9.73

Mortality in New Orleans from October 22d, 1877, to November 25th, 1877, inclusive.

Week Ending	Yellow Fever.	Malarial Fevers.	Consumption.	Small-Pox.	Pneumonia.	Total Mortality.
Oct. 28.....	0	6	18	3	6	123
Nov. 4.....	0	7	13	3	2	107
Nov. 11.....	1	10	14	0	5	95
Nov. 18.....	0	4	20	2	5	126
Nov. 25.....	0	5	16	2	6	113
Totals.....	1	32	81	10	24	564

Board of Health, State of Louisiana.

SAMUEL CHOPPIN, M.D., *President.*
B. F. TAYLOR, M.D., *Secretary.*

W. G. Austin, M.D., F. Taney, M.D.,
F. Loeber, M.D., Joseph Jones, M.D.,
G. W. Nott, Esq., Samuel Boyd, Esq.,
Col. T. S. Hardee.

THE

NEW ORLEANS

MEDICAL AND SURGICAL JOURNAL.

JANUARY, 1878.

ORIGINAL COMMUNICATIONS.

LISTER'S ANTISEPTIC TREATMENT OF WOUNDS, IN WARDS 3 AND 4½ OF THE CHARITY HOSPITAL OF NEW ORLEANS, DURING 1875, 1876, AND 1877.

UNDER CHARGE OF

M. SCHUPPERT, M.D.,

Professor of Operative Surgery and Orthopedics of the New Orleans Charity Hospital Medical College, and Visiting Surgeon to the Charity Hospital.

Gentlemen—The astonishing reports which had reached me from the interior of Germany at the end of 1874, that the antiseptic treatment of wounds recommended by Lister promised to cause a revolution in surgical practice, did not permit me to rest, and the Spring of 1875 found me already on the road to visit those places from where such stunning facts were reported. After my return to this city in the fall of 1875, I have given a résumé of what I had observed in some of the more renowned hospitals of the European continent, in a few lectures delivered in the amphitheatre of the Charity Hospital, and which were afterwards reported in the *N. O. Medical and Surgical Journal.*

In the following I will try to give you a most minute description of the antiseptic treatment, the progress it has made, the results obtained under it by the most renowned practitioners, as also the experience which I have gained during the period mentioned above, with the method in question.

From what I had seen in a few of the larger hospitals in Germany, I stated in the publication mentioned, that a revolution had taken place in one of the most important departments of surgery, and I prognosticated with the speedy downfall of the old methods of treating wounds, and the general acceptance of Lister's antiseptic method, a new era in surgical practice, although this method was yet in its infancy, and the number of surgeons a small one who were then ready to confess its superiority over all other methods. One of the great obstacles in the way of a more extensive adoption of the teachings of the distinguished Scotchman, lays in the idea, that his treatment was based upon a theory to which many surgeons were then opposed. Yet Lister himself did not insist upon the adoption of any theory in advancing his method. He had, by a succession of trials, finally come to recommend his empirical treatment, which according to the experience of Prof. Volkmann, in Halle, promised results at that time unheard of in surgical practice, and surpassing even the keenest expectations.

From what I had seen, and from the statements of that trustworthy professional expert—statements corroborated by hundreds of eye-witnesses—it could not longer be a doubtful issue with me to prognosticate the final universal adoption of these revolutionary ideas. What I had predicted to come to pass has thus been fulfilled in extenso.

Amongst the surgeons in Germany, at least, there is at present but one voice, and that is in favor of Lister's antiseptic treatment of wounds. Slowly it has also broken ground in England and in Italy, and even France begins to be heard of. At the time I visited Paris, in 1875, the name of Lister and his antiseptic treatment were things unknown in the Lariboisière, a res innota at the once celebrated Hotel Dieu. Shall it be said of this, our country, that it is behind others, and slow in urging the necessity of the general adoption of the antiseptic method? Besides the security which this method renders to limb and life, the almost unexceptional good results it promises in treating the most dangerous injuries of joints, the protection it guarantees against accidental wound diseases, pyæmic, septicæmic and diphtheritic fevers, the safety it offers against inflammatory conditions so often associated with large wounds, it proffers also the prospects of healing wounds by first intention, be it even wounds of the largest size, as in flap or circular amputations. Next to the

security, it exhibits the shortening of the time to a patient's final recovery. Are not these virtues sufficient to make its general adoption an unconditional necessity, and ought not the surgeon to be held morally (if not legally) responsible for every life lost, if he neglects to adopt those principles which guarantee such a successful and safe issue?

It cannot be denied, that under other and quite different treatment also good results are occasionally obtained, yet they will not stand a proper scrutiny. Such results are accidental, obtained under favorable conditions, which if absent would have had a quite different issue; whereas in Lister's antiseptic treatment, we recognize those virtues which promise the propitious results under all, even the most adverse circumstances. Who would have the hardihood to perform the operation of tracheotomy, for instance, in a room where diphtheritic wound diseases were present, or perform any other operation in the presence of hospital gangrene, erysipelas, or other diseases, their dangerous effluvia towards wounds being amply known? Yet under the protecting folds of Lister's antiseptic method, we may even expose our patients without the risk of an infection, if only its directions are strictly adhered to, but to the minutest prescriptions. A great error is occasionally committed in changing one or the other element composing Lister's method. What do we not hear called an antiseptic treatment? Some believe that if they only stuff the wounds with so-called antiseptic materials as jute, or are using carbolic acid (often mixed with oil, not knowing that the oil neutralizes to a great extent the antiseptic effects of the phenol); others think that if they cover the wounds with antiseptic gauze, all requirements of an antisepsis have been fulfilled. Even in Germany, some prominent surgeons had thought proper to leave out one or the other element composing Lister's method, as for instance, the spray, building up a theory of their own about the efficiency or non-efficiency of one or the other material; yet it is known, that not one of them has as yet arrived at the astonishing results of Prof. Volkmann, of Halle, and most of them have returned to the original proper "Listering."

It will take a long while to attain that proficiency in the adaptation of the antiseptic bandage without which the desired results may in vain be expected. When I say that I believe I have surmounted the difficulties in properly handling the dif-

ferent elements of Lister's method, I am far from asserting, that I also have had to record the corresponding good results in all cases. But, if the results have not been as favorable and satisfactory as I had wished for, I do not intend to hold the method responsible for it. In order to obtain such results as will soon be mentioned, it is necessary to have at hand besides the proper material, well instructed assistants and trained nurses. The Charity Hospital not being able to buy the costly material, I had to furnish it out of my own resources, and when one or the other article began to fail, I could only replace it by sending to Europe for it. In the frequent change of the assistant students, and the corps of unstable, undrilled, awkward nurses, entirely incapable for proper nursing (being mostly taken from the roll of discharged patients), lay obstacles of the greatest importancee.

When I, therefore, in laboring under such difficulties, look upon the results which I have obtained so far, I have certainly every reason to be satisfied. If it wanted further proof of what I have just said, I need only point to the greater number of good results since I have been assisted by my present promising young assistants, to whom I feel deeply indebted for their assiduous and untiring care and attention towards my patients.

So alone was it possible to heal an amputated humerus in five days by first intention, and resect an elbow-joint without the least subsequent fever or one drop of suppuration. Still, in order to show the full value of the antiseptic treatment, it will be necessary to point to those who have been as yet unrivalled in their success, and call into the arena of surgical practice repeatedly the issues obtained by those who were better situated and better served. Of all German surgeons it was mainly Prof. Volkmann, of Halle, who, supported by intelligent and faithful assistants, contributed warmly and enthusiastically to the general adoption of Lister's method, so that Lister himself, on a visit to Halle, became a most earnest advocate of his own teachings, declaring that here he was beaten with his own weapons. Indeed, when we look at the antiseptic method of Lister in the hands of the German surgeon, we may, knowing with what sceptic eyes the method had been viewed in the inventor's own country, well put the question, What would have been the next future of this brilliant conception, had not an accident thrown it into the hands of the man whose name we have just

mentioned? We may therefore well look a little closer into that which has been called by Volkmann the "aseptic occlusive bandage."

Although the method of Lister originated in a sharp formulated theory, nevertheless the many improvements and alterations to which the method was submitted to by him, proves on the other hand its empirical character, the fruit of years of experiments and changes. Lister had become convinced that many of the accidental wound diseases were caused by agencies contained in the surrounding atmospheric air, and that it was the protection of the wound against these noxious influences which made him the restless experimentator, until he finally came to the present mode of dressings.

It is therefore ridiculous and arrogant, if men without any experience in the application of the antiseptic treatment think themselves justified to change one or the other element of this method.

Volkmann corroborates Lister's dictum: that it is not the carbolic acid alone to which are to be attributed the results in the antiseptic treatment, and even expresses the hope that we may soon be able to get rid of this not entirely innocent but rather dangerous substance.

Volkmann sustains Lister's claims that in fresh wounds, if treated ab initio, no kind of putrefaction or decomposition will happen, that the malignant and progressive forms of acute suppuration shall never become developed. Should the results be different to what has just been claimed for them, then the idea lies near to seek for the failures, not in the method, but in the inexperience of the manner of application, in the want of proper attention of the surgeon.

The most astonishing and surprising results of this, the antiseptic treatment of fresh injuries and operative wounds, consists therefore in the total absence of the so-called "stadium purificationis," its concomitant phenomena of decomposition and local reaction; no inflammatory swelling and redness of the wound edges are observable; the molecular necrosis of the superior layers of tissue in contact with the air never takes place. The wound retains its fresh-looking aspect for several days before it is covered with granulations. The constancy of the secreting wounds remaining inodorous, the missing nauseating, cheesy smell of the pus, otherwise observable after the first few

days in a somewhat extensive wound, even if the bandages have been left unchanged for some time, and that likewise in an extensive gangrene, no smell can be detected, speaks loudly in favor of the method. Of all high compound liquids the blood is known for its rapid decomposition, yet under the antiseptic bandage such is not the case; it becomes rather organized, or is absorbed by the granulating tissue. I have observed this in a case of a young man of 26 years of age, who had suffered from an osteomyelitis of a tibia for several years, had undergone all kinds of treatment without any material benefit, because his disease had been misunderstood. I trephined the tibia in its whole length, chiseling away the bridges between the holes made by the trepan, and scraped out the whole contents of the bone from a point near the epiphysis down to the internal malleolus. The hollow place thus formed in the bone was filled out with blood, and under the antiseptic bandage this accumulated blood became organized, granulating tissue sprang up, the bone being finally covered with skin, though the wound edges had not been sewed together. The young man is since entirely restored. This is a healing under the formation of a "scab," which has never been observed to happen without suppuration. In another case I resected the whole elbow-joint, with the exception of the olecranon; from the humerus, both condyles were taken off obliquely, leaving only a small portion of the olecranon fossa; nearly four ctm. were resected off the radius. On the 3d and 5th day the wounds had healed by first intention, and all the sutures had been taken out. No ligatures had to be removed, since only one artery was ligated, and that with catgut, the ends of which were cut close to the knot. The drainage tubes were removed on the 10th day. The operation was followed by neither fever nor suppuration, not a drop of pus escaped from the drainage tubes, the latter being already filled with organized blood. It is necessary to wait with the application of the antiseptic bandage, until all hemorrhage has ceased. Secondary hemorrhage may require a removal and exchange of the same, even after the lapse of a few hours, if the bandage should be saturated with blood, yet we ought not to be alarmed about some patches of coagulated blood and fear that a suppuration might set in. In order to avoid all irritation of the wound, it is better not to touch the dressings in such a case, or to wash away the blood with the irrigation of carbolic acid water. Another point to which I

should like to call attention, is the total absence of any local reaction of the integuments surrounding the wound. In the great majority of cases, we may fail to detect even a particle of any œdematous swelling or redness of the soft parts, be the injuries caused by incisions, or the integuments be lacerated by machines. The same occurs in the most severe complicated fractures, with denuded fragments, partial gangrene of the cutis, and extensive extravasations of blood between the muscles. No kind of reaction! Never, says Volkmann, have I seen similar results in equal measures and so unexceptional. The consequences drawn of it are of the greatest importance. We may apply, for instance, the plaster of Paris (gypsum) bandage in an acute complicated fracture, or after a resection, and in osteotomy, etc; never need we fear that the parts will swell and overlap the openings made in the plaster bandages for redressing the wounds. The secretion even of the largest wounds, after the first bandage has been removed, is more scanty than under any other treatment, necessitating dressing of the wounds but every other day; yet even 3 or 4 days may they remain undressed, provided that on no place the secretion has penetrated the bandage, and that an incipient fever does not require an earlier redressing. The ideal of the liquid which the secretion furnishes under the antiseptic dressing of Lister was obtained by me only in a few cases. The secretion shall not be turbid from pus, but thin, serous or phlegmy, and associated with healthy granulations. In most of the cases the secretion, although scanty, was of a yellowish color. During a time of 15 months, Volkmann, under the application of Lister's dressing, has not seen a single case of progressive phlegmonous inflammation, no suppuration, infiltration, necrotic or diphtheritic inflammation of the cellular tissue; no acute purulent œdema, and the obliteration of the wounds a prima intentione, where not purposely interfered with, has been the common result. Volkmann hereby intends to designate, not those superficial adhesions which we observe often in sewing together the edges of superficial wounds, but the agglutination of larger surfaces, as in amputations with flaps, the union of opened muscular interstices of larger irregular cavities. But it is of great import, if good results shall be obtained, that the dressings, and foremost, the first few bandages, are applied relatively tight, be this attained with the use of additional sponges or with properly folded gauze compresses.

The name "occlusive," used by Volkmann, has been objected to by others, because the air had still access to the wounds; yet it strikes me that there is a great difference in what *condition* the air has access; if in a purified state as here, or on the contrary, when containing all the impurities, and which would undoubtedly cause quite a different result. Volkmann says, "It is a real *occlusive compressive bandage*, of great import during the first hours or days, which decides the later fate of the wound; it is free of those incalculable dangers which may be developed from a decomposition of the wound-secretions."

In the *open wound treatment*, as others also feel inclined to consider this occlusive bandage, care is taken to simply remove the nefarious agencies which may come into the wound from out the air, whilst our antiseptic occlusive method has the object, not only to resist the ingress into the wound of these noxious agencies, but to neutralize their action if admitted; but with this explanation we are in the midst of the theory which we intend to avoid. The practical result of the occlusive compressing antiseptic bandage is, according to the experiment, expressed in the following: that we, within the first 3 or 4 days of a severe injury or operation, can expose the wound, even if the secreted fluid should possess inherent poisonous qualities, to a very strong pressure without having to fear any bad consequences.

"I should like to inquire," says Volkmann, "of those great admirers of the open wound treatment, doubting the existence of agencies in Lister's method capable of destroying all substances causing inflammation or suppuration, if it would be possible during a term of 15 months, whilst treating 5000 cases, amongst which were 51 amputations, 31 resections, 18 complicated fractures conservatively treated, 79 severe hand and finger injuries, etc., that not a single suppurating or putrefying phlegmonous inflammation, not a single acute collection of pus should happen?

Volkmann lays great stress upon the prima intentio, upon the primary agglutination of the walls of large abscesses, even of the so-called cold or congestive abscesses, as the rule, and sees the advantage of the compressive antiseptic bandage in the application of short drainage tubes, which he introduces only between the wound edges, and removes them again in a short time, *i. e.*, when the secretion ceases. Billroth, in his excellent work of Coccobacteria Septica, was, a few years ago, still oppos-

ing the idea of closing large abscess walls per primam intentionem, but what he then said could not apply to the antiseptic bandage; since he has now adopted Lister's method he probably will have changed his ideas, as also his dictum, that the healing of a large wound, prima intentione, as in an amputation, was of only small import. Indeed, the advantages of healing by first intention are of so great moment, that it must strike us, to see a man like Billroth object to it.

Volkmann with propriety calls attention, that with the antiseptic method a number of dangers are removed, that pyæmia and septicæmia will not take place, no collection of pus, nor subsequent fever; and finally, as regards the time, a wound healing in a few days will surely be preferable to one which requires weeks and even months to attain the same end. Aside of the danger we hereby overcome, the saving of the material used for dressings is also of great import. Billroth asserts that he has only once seen the healing of an amputation stump of the humerus by first intention; which cannot be wondered at, if we consider his treatment, which was quite different from the antiseptic method of Lister. An amputation stump healed under the antiseptic method is free of all those faults which we find when a suppuration has lasted for a long time. The form is a better one, rounder, the end of the bone sufficiently covered and not adherent to the cicatrix, which is commonly drawn in, retracted. Neuralgic affections seem to remain absent, or are of rare occurrence. The sensation as if the removed limb was still present, which I have often observed, even in cases having healed by prima intentio, must not be confounded herewith. Excoriations of the cicatrix are equally seldom. Of ten amputations, including one disarticulation of the upper extremity, performed by Volkmann, healing by first intention occurred 8 times; of two, healing under the first bandage was accomplished to a great extent. Not one of all had to remain in bed longer than 8 days; wound fever was slight, and only present the first few days, and was absent in some entirely. Of one extraordinary fine looking stump after an amputation of the femur in the middle, Volkmann had a plaster cast made on the 13th day after the operation. I am far from comparing the results of my capital operations, which, by the bye, were not all performed at the Charity Hospital, in number as well as in regard to the mode of healing, or the time a final cure was obtained, with those pub-

lished by Volkmann, still of the amputations comprising three of the femur, 7 of the leg (in one case both legs were removed), 5 of the upper extremity, of which were 2 of the humerus (one healing in five days), 3 of the forearm; to which I may add several resections—4 of the hip, 2 of the head of the humerus, 1 of the knee-joint and 1 of the elbow-joint (the latter two healing by first intention without any suppuration or fever)—*I did not lose but one case by death.* This one osteotomic case, viz., a resection of a wedge-shaped piece of the trochanter of the femur (the history of which case will be given later), died of pyæmia, having previously contracted erysipelas, and I hold the nurse entirely responsible for this mishap. With such results I can well be satisfied, and the more so when I compare my results with those of others with whom many amputated either died or were still walking the floor of the hospital for months, after mine had been cured; and not that the cause hereof could be explained by smaller injuries; no, a majority of my cases amputated were complicated fractures caused by railroad accidents, known to be the most severe of all such injuries; and amongst the inmates so injured were some cases of whom the limbs had been preserved, who under any other treatment than the antiseptic would likewise have undergone amputation. I can mention two such cases where the operation of amputation was already pronounced, and whose limbs were preserved under Lister's treatment.

In regard to the wound fever, I can say that I seldom observed it in my cases, and when so it was slight, lasting only 2 or 3 days. The secretion was generally scanty, no complications.

Two years ago, when I visited Vienna, and that magnificent hospital distributed over eight enclosures, Billroth had just published his work on Coccobacteria Septica, to which he traced all the different forms of micrococci. Billroth had not then introduced Lister's method, but was using as an antiseptic dressing the solution of acetate of alumina, recommended by Burrow, sen., of Koenigsberg. It is known, that at the present time this has been exchanged for Lister's method. I had occasion to observe and compare the different results of operations here with others, and the superiority of the antiseptic method was evident. Besides that cases of pyæmia and erysipelas occurred, there were suppurating wounds of compound fractures of long standing, which do not happen in Lister's treatment. Sponges were prohibited; in their stead, tampons of cotton soaked with chlorin-

ated lime were in use. I saw two cases of extirpation of a testicle, for sarcomatous degeneration, a complicated fracture of the leg, cases of near two months standing, and still far from being cured. These cases would have been healed under the antiseptic treatment in a short time, and even without suppuration. It will not be disputed that occasionally an amputation wound may be closed by first intention; that a resection, or a compound fracture may heal with but little or no fever or suppuration, whatever the treatment may have been; but whilst such cases are exceptional, they are the rule under the antiseptic treatment. And what shall we say, when in the face of such undoubted facts there are still surgeons who stuff the stumps, after an amputation, full with cotton, leaving it there for weeks, until it creates such a stench that to stay in the neighborhood of such a nuisance becomes unbearable even to olfactories which are accustomed to not the most delicate flavors. I cannot do better now than call attention to the *technical proceeding* of the antiseptic occlusive bandage in the treatment of wounds, and to insist with Volkmann upon its faithful execution if otherwise failures shall not be recorded.

The first and most important element in the application of this method is, that every part of the material which comes in contact with the wound is previously again to be disinfected; the hands of the operator, and most so the finger nails, as also those of the assistants, have to be well cleansed and brushed with 3 per cent. carbolic acid water. Every piece of bandage, even previously made antiseptic, at the moment of its use must again be disinfected with carbolic acid water of the same strength (of 3 per cent.). Sponges are only used if previously treated first with permanganate of potash, and then with hyposulph. of soda and muriatic acid, and are to be kept in glass jars filled with a 5 per cent. solution of carbolic acid, as also the drainage tubes of india rubber. The instruments, a short time before being used, are placed in a 3 per cent. solution of the acid, after being cleaned of all grease by wiping them with a piece of disinfected cotton.

No one but the assistants must be allowed to touch anything which comes in contact with the wound. (In ovariotomy, Prof. Schroetter, of Berlin, who has operated 16 times under the antiseptic treatment without losing a single case, insists not to have more persons present than two assistants, one for the adminis-

tration of chloroform and one to hand the instruments—a wise rule.)

The body of the patient, at least the parts in the neighborhood of the place to be operated upon, have to be well cleansed.

Volkmann says, that amongst the first few hundred proletarian people he operated upon, he had himself undertaken this cleansing process, first with soap water and brush and the razor, and afterwards with 3 per cent. carbolic acid water. Fresh wounds are, previous to the application of the first bandage, washed with sufficient large quantities of 3 per cent. of carbolic water, and the same rubbed in with the fingers in all wound recesses. In severe complicated fractures of several hours standing, or in operations which have afforded a considerable long time to be performed, or in wounds with irregular deep-seated cavities, a solution of chloride of zinc of 8 per cent. is once applied, and even in wounds indurated like smoked beef, or when their surface becomes milk-white from the chloride of zinc, healing by first intention is seldom interfered with. All bandages are applied or changed under the action of the spray dispenser; in large wounds often two such instruments are set in action. In changing the bandages, it is considered important that everything necessary of the antiseptic material is at hand, so that the wounds are exposed to the contact of the air the shortest length of time. The wound and its surroundings must be wiped off with a tampon of cotton which has previously been saturated in a strong solution of carbolic acid. If the protective silk becomes spotted or the secretion of a bad odor, we can rest assured that in the last bandage an error has been committed; the wound must then be well irrigated with carbolic acid water, or even must be disinfected anew with chloride of zinc. During the healing process of fistulas and cavities, irrigations with carbolic acid solutions are to be avoided, because the carbolic acid which remains behind in the cavities unnecessarily irritates the granulations and increases the secretion. To induce even more extensive wounds to minimal secretion, of more serum than pus, can be obtained only by a scarcity in the use of the carbolic water. Yet, in the first disinfection of fresh wounds, the use of the disinfecting fluid cannot be too extensive, and even strong solutions of carbolic acid will be endured, and have a beneficial influence; but to wash out the secretions of a wound, as long as there are no products of decomposition, is not only superfluous but injurious. After the aseptic

process is once established, Lister's bandage has no other object than to protect the wounds; it becomes a protection bandage, and the less the wound comes in contact with the carbolic acid, the better. Since these rules have been adopted in our hospitals, says Volkmann, our results have improved. The drainage tubes are occasionally taken out, disinfected and replaced. The exposure of a wound in renewing the dressing is commonly followed by an increase of the temperature, which does not, however, last long. In wounds not of a severe nature, the disinfection may be indicated at the end of the operation by the irrigator, which is then finally exchanged with the spray when the bandage is being applied, or a wound closed with sutures. In more extensive operations and in open joints, suppurating bone diseases, resections, no spray is used, but precaution taken to scoop out with the sharp spoon, previous to the operation, all fistulous tracts, abscesses with undermined edges, under a continuous stream of carbolic acid water and until all suppurative tissue has been removed. The dressing is afterwards typically applied under the spray.

So-called congestive or cold abscesses, psoas and iliac abscesses, are best incised with extensive cuts before being typically dressed under all cautelas of the antiseptic method. In making use of properly gradnated and exact compressive bandages some will heal by first intention, or at least be closed in the greatest extent, yet every kind of insult to the walls of the abscesses must be carefully avoided.

Speaking of the materials used in the antiseptic bandage, we have next to the wound the protective silk, on top of which are placed layers of Lister's carbolized gauze, covered with a piece of gutta percha paper or makintosh. The gutta percha paper must be somewhat smaller than the gauze beneath it, and is in turn covered with the last, or 8th layer of the gauze. The latter with its eight layers must overlap the wound to a considerable extent, and used on an extremity had best surround the whole circumference of the limb. The gauze must be fastened with roller bandages of the same material as our mosquito bars. Lister uses in their stead his prepared bandages of carbolic acid, paraffin and resin. It is advisable not to use these materials again, after having served in dressing a wound, at least not before they have undergone boiling and renewed carbolization. The dressings have to be renewed as soon as a sign of the

secreted fluids becomes visible under the gutta percha paper, or at the edges of the gauze layers. A careful inspection of the dressing during the first three days is absolutely necessary, since the general result depends upon it. During these three days a renewal of the dressing twice daily will be considered sufficient, even after the most severe injuries, or after capital operations; after this a change every second or third day will be necessary. In some cases only a small number of dressings may be required. Volkmann, in an amputation of the humerus, has used only 9. in an amputation of the forearm 8 renewed dressings, for their complete cure. The loss of time caused by the most accurate attention during the first few days, will be sufficiently compensated for afterwards.

Speaking of the protective silk and its application, Volkmann says, that not too much care can be taken to attach it well to the wound, so that it overlaps it, and which in extensive wounds affords a great deal of circumspection and accuracy. The protective, which before its use is laid in a 5 per cent. solution of carbolic acid water, will be well suffered by all wounds, never sticking tightly to them, thus allowing the dressings to be accomplished in a short space of time; and even when the protective is used in dressing wounds without Lister's method, beneficial results have been seen of it. The sutures in amputation wounds, or after other operations, may be omitted, or only a few of them applied, and still a healing by first intention obtained. Tampons of wound cotton, carbolized sponges or compresses properly applied, can keep the surface of extensive wounds, or the flaps in amputations, well in apposition, causing besides an elastic pressure. In flap amputations, the flaps need be made only a little larger. Drainage tubes are not to be dealt with scantly, and must be applied so that no secretion will be retained in any part of a wound; they must be thus used, not so much on account of the danger of acute phlegmonous inflammations and septic processes, but on account of the possible formation of retention abscesses. It is not desirable to enter the drainage tubes too deeply into the cavities of wounds, nor to allow them to remain there for too long a time, the danger ensuing that hard fistulous tracts may be formed. It is often advisable to shorten the tubes every 2 or 3 days, thus letting the canal fill up from the bottom.

At the hospital at Halle, all bleeding vessels were tied with catgut, as "ligatures perdues"—that means, both ends of the

ligature were cut off and the wound closed over them. In a few instances only have they suppurated out, in all other cases they were resorbed. Never but once during two years has a fatal secondary hemorrhage occurred. This happened after an amputation of the femur, where the femoral artery was ligated. Volkmann says, that he may well recommend the catgut. The difficulties which exist in the use of aseptic dressings with the simultaneous application of the hardening, stiff bandages (of gypsum or liquid glass), may be overcome by cutting so called trap openings into such bandages, after they have become hard. In more extensive injuries, as in compound comminuted fractures, it may be more difficult to give a proper support to the extremity. In such cases, where the aseptic dressings surround the leg, it will be necessary to apply the hardening bandage in two parts, and to unite the two parts of the gypsum bandage (the upper and the lower one) by means of iron splints fastened with a gypsum bandage, and whereby the extremity will be held in a stiff position without being exposed to any pressure.

So much as regards the technical part of the antiseptic dressing of Lister, a dressing which, based entirely upon empirical dogmas, I thought necessary to give in the most minute details.

The method must be learned practically, and a great deal of patience and endurance is required. Yet it shall not be asserted, that it is not liable to further improvements; it is complicated, and on some parts of the body it cannot be applied, at least not to give the proper security. The carbolic acid, aside of its penetrating smell, causes an anæsthetic condition of the fingers; the skin becomes hard and discolored, it taking a long time until they tolerate its action. On the other hand, this effect of the carbolic acid prevents any infection to which the operator may be exposed. Volkmann says, that he at present is entirely free from all pustulous and furunculous affections to which he was formerly much exposed. One more noxious effect of the carbolic acid must be mentioned, and that is the intoxication of the sick. Volkmann believes that he has lost one of his patients in this manner; still, if we consider that this patient was very much emaciated and had undergone a resection of the hip-joint, it is not to be wondered at that it succumbed in a state of collapse. "This happened," says Volkmann, "at a time when we were washing out all wounds at every renewal of the dressing with large quantities of carbolic solution. Repeatedly have we here ob-

served such a state of collapse, with vomiting, the urine being of a dark greenish color. Small children seemed to suffer most of such affections."

The high value and importance of the antiseptic method may be judged by the following. It is known that Professor Nussbaum, in Munich, at one time could not perform an operation without it was followed by either erysipelas or hospital gangrene, and this to such an extent, that the actual cautery was constantly on hand to be applied after every operation. I have stated, that Volkmann, amongst other accidental wound diseases, mentions that erysipelas was of rare occurrence under Lister's method. At present, since Nussbaum has become a convert and has exchanged his old method of open wound treatment with the antiseptic dressing, erysipelas and gangrene have disappeared from his clinic like magic, never to be seen any more.

As regards Gonorthrotomy, it is known, that a few years back all wounds comprising the knee-joint were considered very dangerous, causing surgeons to shrink from operations upon this joint. When we hear to day with what perfect immunity the knee and other joints are laid open under the antiseptic treatment and by proper drainage, such operations resulting in even a preservation of the mobility of the joint, no better recommendation probably can be given to exchange the old method with Lister's antiseptic treatment.

Hardly a journal comes into my hands from Germany without additional triumphs of the treatment in question. The importance of the antiseptic method, if followed up with that requisite pedantic accuracy, over nicety and punctiliousness, will in future successfully combat and chase from surgical practice all other methods.

Gentlemen—Although I have given you here in extenso a detailed description of the antiseptic method and of all its different parts, its momentous importance does not let me rest, but induces me to give you additionally some new illustrations which the great patron of the method, Prof. Volkmann, has produced in one of the late sessions of the Congress of the German Society for Surgery at Berlin. Volkmann introduced a patient who had suffered a shot-wound perforating the knee joint, yet perfectly restored under the antiseptic treatment *without ankylosis following.*

The young man, 24 years old, a student of medicine, had the

misfortune to be wounded in a pistol duel of a few paces distance; the ball was fired from a rifled pistol, and had penetrated the epiphysis of the tibia. On the 20th of January, 1½ hours after the accident, the patient was brought into the hospital. The ball had entered the joint from outside of the lateral ligament of the patella, and was still located in the head of the bone. The copious flow of synovia proved that the capsule had been opened. The joint and the bursa extensorum were tensely filled with blood. The probe entered to a depth of 5.8 ctm. the caput tibiæ, in the direction of the internal condyle, where a hard body was felt; a sonde à la Nelaton introduced did not give a positive result.

After the patient was narcotized with chloroform, a large incision was made at the place where the ball had entered. After the bone had been denuded, a circular opening presented itself at the external condyle of the tibia, 3 lines below the cartilage. No splinters or fissures of the bone could be detected. The ball was now removed with the chisel, a procedure which afforded a great deal of circumspection and close attention. Nearly the whole thickness of the head of the tibia, from the external to the internal condyle, had to be chiselled through. The ball was found to be impacted tightly at the internal plate of the subtile "substantia compacta." The place of the entrance of the ball had to be enlarged to the diameter of one inch, to make sufficient room for the instruments and to let the light enter. The form of the cavity so made was conical, its upper part nearly touching the cartilage. Here the existence of a small fissure was suspected, for after the first strokes with the chisel, air had been observed to penetrate the joint. The escaping air could even be heard by the sound it caused. The extraction of the ball, a round projectile of small calibre, was very difficult, but it was finally successfully performed, after it had before been loosened with a blunt-

NOTE,—A ball searcher of my invention consists in the following construction: Two silver probes, isolated from each other by an india rubber tube, are coupled together so that the lower round heads of the probes are at a distance of one line of each other. At the upper ends of the probes two wires, overspun with silk, are fastened. Between the two wires are interpolated a galvanic element of zinc and carbon and a galvanometer, The electric current travels from the element to one probe, and through the wire of the other probe to the galvanometer and the element. It is clear that if the heads of the probes touch the ball the current is closed, and the needle of the galvanometer will indicate it. In the absence of a ball, the needle of the galvanometer will not be moved.

pointed elevator, and after removing the surrounding spongious bony matter with a sharp spoon. The total depth of the hole so made, amounted now to 6.4 ctm. Considering the knee-joint undoubtedly opened, an incision was therefore made 2 ctm. long at the inner and upper edge of the patella, and after the capsule had been incised, the cavity of the joint was washed out with a solution of carbolic acid and drained. A drainage tube was also entered into the bony canal, and the whole wound dressed antiseptically after Lister, with fixation of the limb on a splint, made of tin. The injury and subsequent operation were not followed by the least local reaction. The temperature during the first 4 days did not rise nightly over 38° C., and from the 5th day the patient was entirely free from all fever. The wound was now sewed up, with the exception of its middle part, which gaped over the deep defect in the bone, and was observed to be filled up with a dark, thick coagulum of blood, which without any suppuration progressed through the known metamorphoses. Already on the 4th day (24th January), the drainage tube, which had been introduced into the incised cavity of the joint, could be removed permanently, because by compressing the joint no secreted fluid could be squeezed out. The other drainage tube in the bone channel was considerably shortened. On the 6th day (*i. e.*, after 5 times 24 hours, on the 26th January), this drainage tube was also permanently removed. The channel in the coagulum hereby preserved, was at the next dressing observed to be completely obliterated. No traces of a suppuration could be detected.

On the 23d of February, the uppermost layer of the coagulum came away as a thin sequester. The extensive defect in the bone has cicatrised to a plain granulating surface, not larger than a 5 cent silver piece. No fistula exists, not even a depression is visible; the extensive cavity in the bone is filled out by a tissue perfectly organized, which organization has supplanted gradually the blood coagulum, without any suppuration.

On the 7th of March patient left his bed. Two days later (9th March), he already walked about with the support of a stick, moving slowly the knee-joint.

Volkmann, in pointing at the patient, whom he had introduced to the Society, said: "You see him, gentlemen, to-day walking like a healthy man, descending the steps of the amphitheatre. The knee-joint may be bent actively under a right angle; the

motions are perfectly free. 2½ months after such a severe injury he walks the longest distances, and is the whole day on his feet; certainly a proof, more than sufficient, of the extraordinary results which can be obtained with the antiseptic method."

Gentlemen—From the descriptions of such remarkable cases and such stunning, wonderful reports, we are enabled to appreciate the whole importance and utility of this treatment, and it shall not be my fault if, in closing this chapter, I do not leave you the enthusiastic admirers of one of the greatest improvements in surgical practice of the 19th century.

I would, in closing here, not do full justice to the subject, having forgotten to mention the name of my friend Ranke, the able assistant of the Clinic in Halle, the right hand of Volkmann. After Volkmann had interested the large audience with the remarkable cure of the case which he had introduced, Ranke gave some valuable illustrations of the technic of the antiseptic treatment, and having presented to the assembly some further remarkable cures, made the following statement of the general results of the treatment of *penetrating wounds of joints* obtained at the hospital of Halle:

From 1874–'76, he said, there were admitted in toto 24 cases with injuries of joints, and 2 in addition during 1877. Of these 26 cases with open joint diseases, antiseptically treated, *not a single one died!*

Gentlemen—Let me repeat these important facts, *not a single one died out of that number of* 26, *suffering such injuries!*

Such a statement is really unheard of, and has not happened from the earlier days of surgery down to our era! On 4 of these cases accompanied with serious fractures of the forearm and complicated with openings of the wrist-joint, secondary amputation had to be performed, and the same happened with one complicated fracture of the foot after the patient had suffered a serious attack of delirium tremens, but in all these cases life was preserved! Equally so did 4 partients recover on whom intercurrent resections of joints had been performed; the balance of 17 cases were treated conservatively. The obtained results were in short the following:

All cases which, previous to an incipient reaction, came under treatment, had been restored with a *movable joint;* no matter if they had any or no contemporary injuries of bones. Their number was *fourteen.* The balance of three cases were treated

after suppuration had already set in, and here the cure was obtained with ankylosis. *Only 3 cases ankylosed out of such a number!* Ranke introduced then some of these cases, giving their full details. He attributed their recovery without ankylosis to the close attention with which the antiseptic treatment had been applied. Having already given a minute description of the treatment, I will only mention a few of his remarks. The joints were laid open, or dilated sufficiently, in order to examine the wound with the well-disinfected finger; the cavity was repeatedly, during a long interval, irrigated with a 5 per cent. solution of carbolic acid. The incisions were mostly made in the larger joints, always in a place best suited for the discharge of the secretions, and sometimes one or two counter-openings were made, and large india rubber drainage tubes being selected. The inner opening of the drains reaching into the capsular space, their outer opening was cut off on a level with the skin. Placing the drainage tubes across the cavity of the joint, or into the rent of the joint, was most carefully avoided.

After the wounds had been closed with sutures, the drainage tubes, previous to the application of the bandages, were once more well irrigated. A main point consists in the elastic compression, made with folded mull or gauze clothes, they being applied tightly and accurately, and in redressing, all and every irritation of the synovial membrane has to be avoided. In all newly arrived injuries, the cavity of the joint was never again, after the first dressing, brought in contact with carbolic acid. The renewal of dressings took place as soon as even a trace of secretion was observed. If no secretion came out of the drain tubes, which most always happened at the end of the first week, they were removed. After the lapse of a few weeks, the passive motions of the joints were begun with, but carefully, even if the external wounds were not definitely cicatrized. If at the time of admission of the patient suppuration already existed, then the course of the wound was not as simple. Initially, we were here forced to wash out the wounds repeatedly with disinfecting liquids, until we succeeded in our efforts to impress upon the wounds an *aseptic character.*

Gentlemen: though I have tried to give you a most minute description of the technic of the antiseptic method, I may here and there have overlooked one or the other material point; and besides the proper application of the different materials, the handling of the

wounds in their great variety are such important points, that from the least neglect, a forgetting of one or the other rule, may negative and spoil the whole future of the treatment, and impair its final result, so that it cannot too often be repeated. It is the honest confession of the great intelligent patron of this method in Germany, that it has cost him one year, before he could lay claim to his present ability and aptness, to handle the materials properly, that I will repeat here from his latest publications (not older than August of the present year) the essential periods, and you will soon discover if I have not given you, here and there, some new points of great and important interest. Besides that Volkmann here treats more minutely of the *complicated fractures*, he at the same time lays down the rules which should guide us in making up a reliable *statistic*, snd adds some very valuable accoutrements of the antiseptic method. Do not, therefore, regret the hour spent in the perusal of rules already once mentioned. In a matter of so great importance, a treatment so new to most of you, it cannot be expected that a single mentioning of so complicated a material, as we have here under consideration, should be at once thoroughly digested.

(*To be continued.*)

OCCLUSION AND DILATATION OF LYMPH CHANNELS.

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Continued from November No.

CHAPTER II—continued.

Another and important anatomical characteristic of the lymphatic system is presented in the relation which the glandular bodies bears to the vessels. Every lymphatic vessel passes through a lymphatic gland, and many through two, before reaching the great trunks. The lymph vessels, before penetrating the peripheric fascia of the glands, divide into a number of smaller vessels, which are distributed upon the surface of the cortical portion and empty directly into the superficial lymph sinuses; and from each gland emerge a number of vessels, fewer in number but larger in size than the afferent vessels. The

lymph is poured through the afferent vessels into the lymph spaces of the cortical alveoli, thence into the channels of the medullary substance, and escapes, enriched in corpuscular elements, into the efferent tubes. The current of the fluid passing through such a complex structure must necessarily be retarded, whatever be the connection between the vasa afferentia and vasa efferentia, whether, as originally propounded by Malpighi and subsequently maintained by Ludwig and Noll, by a system of aggregated and anastomosing cells, or, as held by Kölliker, by the pouring of the lymph into the alveoli, and its flow through them in finely divided streams among the elements composing the gland substance; or, as maintained by Recklinghausen, through distinctly recognized lymph-paths. Soemmering recognized the fact that the lesser number of efferent vessels, without aggregate increase of comparative caliber, did not compensate for the retardation of the current of the lymph in consequence of the obstruction presented by the structure of the glands.* Thus, independent of the physiological function, the glands subserve an important office in regulating the flow of the lymph towards the central trunks; for as the system of lymphatic vessels is constantly diminishing in number and comparative capacity, until finally the whole is collected into two great trunks, it would follow that the impetus of an unimpeded current through unobstructed and lessened channels, would increase in a ratio proportionate to the pressure force of the accumulated fluid. The glands interrupt the continuity of the current, and consume or prevent this augmented velocity. It is difficult to conceive how the heart force, even though "unbroken by the slow current (Jacobi) of the terminal plasmatic circulation," or the force derived from endosmosis, taking place at the periphery, can be operative through two or more tiers of lymphatic glands.

This relation of the glands to the lymph current is, moreover, especially interesting in its pathological significance. Whatever enters the lymph may, if small enough, pass through the gland

* "Inasmuch as it may be said concerning the blood-vessels, that the rapidity of the passing fluid is lessened on account of the lumen of all the branches being greater when compared with the lumen of the trunk, so likewise in the lymphatics the rapidity of the lymph is lessened which passes to the glands; for although the efferent vessels are fewer and in a mass have not their lumen larger than the afferent vessels, in them, however, the rapidity which is lost by friction, and by distention of their walls, whilst the fluid is passing through the smaller and cone-shaped vessels, is not compensated for."—Loc. cit., p. 49.

and be swept along with the unimpeded current of the lymph, but the structure of the gland is, in a mechanical sense, a "filtering apparatus," interrupting the free current of the fluid and retaining the coarser particles. The fluid mass of the lymph, in passing through the gland, undoubtedly derives constituents which it did not previously possess, and the structure of the gland which enables it to filter and retain certain elements subserves the purpose of protecting, at least for a time, the body from hurtful material, and may eventually convert it (Virchow) into a new source of infection. This fact is exemplified in the history of every malignant growth. The lymphatic glands are subject to numerous degenerations—extravasations of blood, pigmentary deposits, thickenings of their sheath and of their internal septa, fatty deposits, hypertrophies, tuberculous and cancerous degenerations, and to irritation from various and manifold causes. Anything irritating entering the lymph may induce cell proliferation in the gland. Any of these conditions may obliterate the communication between the afferent and efferent vessels, but every enlargement, or alteration of the structure, of a gland does not necessarily impede the current of the lymph.* Every considerable irritation of a lymph-gland induces leucocytotic development, but the gland enlargement is a simple hyperplasia. Even in tumefactions (Rindfleisch) of a very high grade the lymph passages remain free; and, it is not improbable, when depots, formed by the imbedding of multiplied and divided cells, not unlike collections of pus, form in lymph glands, as are occasionally found in the liver and spleen, the connective-tissue network may permit the passage of the nutritive fluid.† In

* Gendrin inferred from his observations that the lymphatics which permeate inflamed glands become obliterated, but Böcker repeatedly injected lymphatic ganglia presenting various morbid alterations, and invariably found the injection pass freely through all the convolutions of the vessels.—Cyclopedia of Anatomy and Physiology, vol. iii., p. 233.

Every tumor of an absorbent gland is not an obstruction as is commonly understood. In dead subjects, mercury will find its way more expeditiously through swollen glands than through glands merely enlarged.—Soemmering, loc. cit., p. 50.

† Dr. Jno. Ogle has reported two cases of general and peculiar enlargement of the absorbent glands. One was a woman, æt. 39, who was seized with pain over the abdomen, followed by quick pulse, enlargement of the cervical and inguinal glands, œdema of the legs, dyspnœa, acute pain in the back, delirium and death. The cervical, femoral, inguinal, pelvic and mesenteric glands, as also those about the root of the aorta, were enlarged by elements consisting of delicate bodies, of

those leucocytotic conditions in which the glandular irritation does not lead to the destruction of the gland substance, the effect is to increase the quantity of colorless corpuscles in the blood; but when the gland substance is destroyed by suppuration, ulceration, cheesy infiltration, calcification, or otherwise, the formation of lymph cells ceases and the lymph paths become obstructed or obliterated. In such event, the flow of the lymph through the afferent vessels would be interrupted, but it is not probable that dilatation to any serious extent would ensue, for the network of anastomosing vessels would afford escape for the fluid. Only where an entire collection or group of glands are involved is such serous accumulation of lymph and distension of the vessels likely to ensue. A number of cases of lymph stasis resulting from devastation of lymph glands have been observed. In* Petter's case (54) of Lymphangiectasis, the glands

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rounded form, rather larger than white blood corpuscles, and a few larger sized cells containing large nuclei. The liver and spleen were also very much enlarged by yellowish white masses, containing the same elements mixed with an albuminofibrinous material. In the blood of the splenic vein numbers of round, oval, irregularly-shaped cells, with one or more nuclei, were found, and in the blood of the superior cava there were also found large transparent cell bodies, with and without nuclei.

In the second case the enlargement of the cervical, axillary, inguinal, mesenteric, mediastinal, pelvic and lumbar glands, as those also at the root of the aorta, was due to the presence of material consisting of corpuscles, larger than pus corpuscles, with delicate walls and transparent contents; some elongated, and others aggregated into larger bodies. Both pleural cavities contained a large quantity of a milky-looking fluid.—Trans. Path. Soc. London, vol. xi., p. 247.

Friedreich has found the intestinal glands, in certain cases of Leukhæmia, along with peculiar deposits in the viscera, pleuræ, etc., "to be the seat of sundry elevations and tumors (in connection with enlarged lymphatic vessels), possessing the same histological elements as the enlarged lymphatic glands throughout the body."

See cases of Leukenic tumors in spleen, and cases of enlargement of lymphatic glands with deposit in spleen and other organs.—Wilks, pp. 257 and 269, same volume. Also cases of peculiar morbid growth in lymphatic glands.—Tuckwell, Dickinson, Murchison and Bristowe, Ibid, vol. xxi., p. 362 et. seq.

* The inguinal glands receive the superficial lymphatics from the genitals and from the perineal and gluteal regions. The lymphatics from the scrotum, those from the glans penis and prepuce, which usually unite near the root of the penis and again divide into two branches, which accompany the superficial pudic veins, several branches derived from the anterior and lateral parts of the abdomen, some from the loins and posterior upper part of the limbs in the neighborhood of the trochanter major, and some few branches from the sole of the foot and back of the leg, terminate in the superficial cluster of glands in the groin. From the

had been changed into small cysts, of walnut size, and contained a wine-yellow fluid. From the cavities, the afferent and efferent vessels could be traced. In the cases of Friedreich and Huguier (52 and 53), the ectasia* could be directly connected with the plugging of swollen inguinal glands. Gunsberg saw dilatation of the lymph vessels of the penis in a case of gleet, with probable intumescence of deeply seated glands. Drinkard's case (No 61, *Amer. Jour. Obsts.*) of varicose lymphatics was associated with hypertrophied inguinal glands. In Amussat's (No. 60, *Amer. Jour. Obsts.*) case, the development of the inguinal lymphatics had extended to the glands, apparently transforming them into a congeries of dilated vessels. Wiedel's case of Elephantiasis Scroti, with a discharge of lymphatic fluid, coëxisted with an uneven and nodular swelling, and induration of the inguinal region, left after a general intumescence which had extended more or less over the lower abdominal region, involving also the inguinal glands, which recurred periodically and was always accompanied with increased development of the scrotum ; and in his second case (No. 57, *Amer. Jour. Obsts.*) the milky discharge from the fistulous scrotal vesicle was always increased by pressure upon the enlarged inguinal gland. In Bryk's case (No. 79, *Amer. Jour. Obsts.*) of elephantiatic, pediculated tumor of the left labium majus, the inguinal glands of the left side were swollen and hard coincidently with the development of the bean-like prominence which had always existed upon the left labium majus. In the cases detailed by Billroth (Nos. 71 and 72, *Amer. Jour. Obsts.*), considerable tumefaction of the submaxillary glands existed simultaneously with the lymphatic affections of the tongue and lips. Virchow's case of congenital makroglossia (No. 70. *Amer. Jour. Obsts.*) existed in connection with a tumor below the right maxilla, from which a quantity of lymph-like fluid was discharged. M. Richet observed in a man with cancerous ganglia of the groin, dilatation of the lymphatics, rupture of the varix, and the establishment of a lymph fistula. In Roberts' case the disease of the lymphatics (No. 60, *Amer. Jour. Obsts.*), of the abdominal integuments, with occasional discharge

anterior and lateral and muscular parietes of the abdomen, the lymphatics terminate in the external iliac glands. These glands are also joined by vessels from the glands along the internal iliac artery.—Lane, loc. cit.

* O. Weber maintains that the swollen and occluded glands in these two cases followed chancre.—Billroth & Pitha, Surgery, vol. ii., Div. 2d, Part 1, par. 80, p. 72,

of chylous urine, followed the healing of a succession of abscesses in the left inguinal and right iliac regions, between which there were constant severe and shooting pains; and in Odenius' case of Lymphorrhagia Pachydermia, the cessation of the discharge was followed by a tumor in the inguinal region. The dilatation of lymphatic vessels in cases of elephantiasis, probably, finds its proximate cause in some alteration of the structure of the lymph glands produced by the previous frequent attacks of erysipelatous inflammation, for every such inflammatory process "has the peculiarity of early affecting the lymphatic vessels and producing swellings in the lymph glands." Carter, of Bombay, has reported a case in the 45th volume of the Medico-Chir. Trans. in which a copious milky fluid was discharged from a small vesicle a few inches below Poupart's ligament, accompanied with great enlargement of the inguinal glands.

The following cases will more definitely illustrate the effect of impermeable or devastated lymph glands upon the current of the lymph.

Case 60. Large fibro-areolar tumor, with hypertrophied, varicose lymphatics in the thigh.*

"A. P., aged 17, from Flimwell, in Sussex; father and mother alive, both over 50; three brothers and one sister living; twelve children have died—causes of death unknown. This patient, one of the youngest, is tall, flabby and pallid, has light hair and blue eyes—the 'strumous aspect.' He declares himself to have been quite well up to the onset of his present ailment, which dates from six years ago; his mode of life up to that time was that of the poorer class, his diet consisting of bread, butter and cheese, with meat about twice a week. The first unusual circumstance was referred to the lower part of the belly. Here a large abscess formed, which laid him up three months in bed, and was attended with much constitutional disturbance, the local symptoms not being marked as regards pain. The abscess extended across the bottom of the belly from one superior spinous process of the ilium to the other; it has left traces of scars, one in the median line two inches long, and about two inches above the level of the median line, and two minor ones on the left side about the same level. The abscess discharged abundantly, leaving the boy extremely weak. Two or three days after the

* T. Carr Jackson—Trans. Path. Soc. London, vol. xvii., p. 287. 1866.

abscess got well, the left thigh began to swell from the knee to the groin. This enlargement has been steadily increasing since; it has not been attended with any particular pain, and only, on about three occasions, for two or three days together, has it laid him up, and then owing to pretty severe pain in the groin. For nearly a year it has, to use his own words, 'run, and the bunches come there.' The sensibility has been, and is now, almost equal to that of the healthy limb. He works on a farm, hop-digging, cattle tending, etc., and the enlargement does not at all interfere with his getting about, nor does it otherwise inconvenience him from its weight.

"The left limb is considerably enlarged in its whole circumference, being much arched in front; from behind the thigh appears square; it does not taper off towards the knee, on the inner side, like the healthy thigh; but the tissues, just above the internal condyle of the femur, are so very much hypertrophied as to widen out this part of the limb greatly. The swelling is well defined by Poupart's ligament above.

[Figure 28.]

"Measurements of Healthy Limb,	"Measurements of Diseased Limb.
1. Circumference over the most fleshy part of rectus...18 in.	25 inches.
2. Just above patella.....12 in.	18 inches.
3. From Poupart's ligament to upper border of patella 14½ in.	18 inches.
4. Below knee.....11 in.	14 inches.
5. Ankle.....7¾ in.	8½ inches.

"He is quite certain that the swelling of the leg, below the knee, is recent, and states that the limb has measured 28 inches in its circumference.

"There is a notable difference in color, and some redness, in part due to straining, in part to actual congestion, and a much larger amount of hair on this as compared with the healthy limb. The inner and front aspects of the thigh are dotted over closely with what appears to be a pustular eruption in the stage of crusting. Over a space which would be covered by the palm of the hand, are the little bunches before spoken of. They are groups or clusters of white points, about the size of a millet-seed, containing opaque fluid. On closer examination, smaller ones may be traced scattered all over the thigh, suggesting to the mind varicose lymphatics filled with lymph; on puncturing them, a milky fluid exudes, which coagulates and, under the microscope, exhibits all the characters of true lymph. Delicate raised tortuous lines can also be detected, which are produced by some distended vessels, running in a serpentine direction, and which are apparently due to hypertrophied lymphatics. It is evident that the pustular eruption results from inflammation of the distended lymphatics, at the prominent points, for the pus is mixed with lymph.

"The limb feels elastic and firm, and the irregularities are more apparent than real; still there is rather more hardness in some places than others. The surface is cool. The swelling is very freely movable over the femur, and if any one part be handled, the whole moves. This also is apparent when the muscles are made to contract. There is no tenderness or enlargement of the glands in the groin, and not a trace or vestige of varicose veins or œdema of the limb. The tortuous lymphatics occasionally burst naturally and discharge freely. The boy states that he has collected pints of it. The limb has decreased considerably

in size, since the lymphatics came to the surface and have disgorged their contents from time to time."

*Case** 61. "This patient was a blacksmith, aged 30; had enjoyed good health until five years previous to his admission to the clinic, when, in consequence of extensive varices, violent, tearing pain made its appearance from time to time in the lower extremities, at first confined to the left knee-joint and leg, with nightly exacerbations, afterwards extending over the entire left lower extremity, when the inguinal glands began to swell, and the integument of the leg and foot became erysipelatous. In consequence of this, several abscesses appeared upon the leg, which with swelling of the inguinal glands, cicatrized only after a few months. Some time after the same attacks occurred upon the left arm, the axillary glands intumescing with violent pain, and erysipelas developing progressively from the hand to the shoulder, followed by several abscesses upon the forearm and arm, which are said to have bursted spontaneously and discharged a cheesy pus, having healed in the form of a radiating scar still visible. Patient now remained well for a year, after which the same process was repeated upon the right lower extremity with this difference, that together with abscess-formation upon the leg, the swelled inguinal glands also progressed to suppuration, and that after cicatrization of the skin as well as of the glandular abscesses, at first the foot and afterwards the leg began to be thickened elephantiastically." * * * *

"With the exception of the funnel-shaped scars in the right inguinal region the skin of the thigh was smooth, but on the leg there were numerous scars, and in places it was uneven and rough on account of the densely crowded, hard nodes, of the size of nuts, not movable over the subjacent parts, and in the erect position traversed by varicose venous networks, especially upon the leg whilst in rest and elevated position of the limb it was flaccid and furrowed by numerous rugæ passing in every direction. Sensibility was undisturbed. Nearly all the lymph glands, accessible to external examination, especially in the neck, the axillæ

* Elephantiasis of leg and foot 2½ years standing; treatment by compression-bandage 47 days. Partial, finally stationary decrease of volume of the tumor. Ligation of the femoral artery below Poupart's ligament. Reduction of the tumor to a small size. Relapse after ten months.—Bryk, Oesterreich Zeitschrift und Heilk., 1869, p. 449.

and inguinal regions, were enlarged, hard but not painful. Over the femoral artery of both extremities a strong systolic murmur was perceptible upon auscultation; thoracic organs healthy; no albumen in the urine. * * *

[Figure 29.]

"The cut represents the appearance of the limb before treatment by compression.

"The reduction of volume continued only during the continuance of the bandaging, and 10 months subsequently he again returned, with the limb larger than when first seen by Prof. Bryk. This time the femoral artery was ligated below Poupart's ligament, with the effect of reducing the limb to its normal dimensions in the course of two months, but another relapse soon followed."

Case 62.* "The patient was a laborer and 25 years old. He stated, that with the exception of a quartan ague in his 10th year, he had always been healthy. In his 12th year he observed, about the centre of his left cheek, a bean-size swelling, which enlarged gradually without having caused any inconvenience. Since his 18th year, had suffered every spring and autumn from attacks of erysipelas, which always attacked the left side of face and head, lasting for several weeks, disappearing with desquamation, and leaving a continually-increasing swelling and induration of the affected surface. At this time (March 1st, 1865), not only the left cheek but also the left half of both lips, as well as the left parotid region, to beyond the sterno-cleido-mastoideus, was occupied by the tumor, which was sharply defined towards the lower orbital edge, and, passing outwards beyond the zygomatic arch, spread diffusely as far as the temporal region and ended below at the edge of the maxilla inferior. The skin was of normal color, tensely stretched across the firm, elastic tumor, and no fold could be elevated. The equable swelling extended through the entire thickness of the cheek down to the mucous membrane, which prolapsed in the form of a pad between the teeth into the oval cavity, and impeded somewhat the opening of

* Scleroderma—A. Bryk, loc. cit., p. 274.

the mouth as well as mastication. The efferent ducts of the parotid and the submaxillary salivary glands of left side were permeable to probes. The left nasal cavity appeared more narrowed, in consequence of the advance of the tumor towards the nasal region, and the entire countenance was disfigured in a high degree by displacement of the alæ nasi and angle of the mouth towards the left side and downward and outwards.

"Decisive for the diagnosis was the enlargement of the lymph glands accompanying the external maxillary artery, one of which upon the inner surface of the cheek, one externally near the lower edge and in front of the angle of the lower jaw, could be distinctly felt through the tumor in the form of nodes of nearly walnut size. Below the left ear, also, existed a lymph gland swollen to the size of a bean. Corresponding to this were three round, vesicular prominences, of pea-size, covered by normal skin, and moveable with the latter at the inner end and above the left superciliary ridge, which diminished upon pressure by the finger and finally disappeared completely, but upon decrease of pressure gradually rose again and could be referred to dilated lymph vessels. * * * *

"Evidently the principal affection in this case was preceded by disease of the lymph glands, whose plugging up was followed not only by stagnation of lymph and dilatation of the superficial lymph vessels in the corresponding districts, but also left a great vulnerability of the attacked portion of the skin, which brought about frequent recurrences of erysipelas, and with it an ever-increasing density of the tissues.

*Case** 63. "A man, aged 30, began to have swellings of the right thigh seven years ago, on the posterior and inner aspect, and in the cleft between the buttocks and the thigh; they were like varicose veins emptied by pressure and refilling, and discharged a milky fluid, sometimes amounting to one or two quarts per diem. Besides these varicosities there were other smaller vessels, some containing fluid and others apparently solid. The right foot was tuberculated; in the left groin several glands were enlarged, and in the right lumps appeared when the discharge ceased. The right thigh exceeded in circumference, at several places, the left by one and a half to two inches. The patient had

* Varicose Dilatation of the Lymphatics in Elephantiasis.—Sidney Jones, Medical Times and Gazette, London, vol. i,, 1875, p. 132.

had four or five very curious attacks of inflammation in the same limb; whitish patches, looking like distended lymphatics, then a beautiful network, followed by diffused redness and desquamation. In one attack his temperature rose to 102°. After one of these attacks the lymphatics became distended, ruptured, and discharged a quantity of chylous fluid, which was followed by a feeling of extreme hunger. The fluid discharged was alkaline, and coagulated in dense clots. It contained vast numbers of granules, lymphoid corpuscles and red corpuscles. On standing, a liquid cream rose to the surface. The proportion of water and solids was 92 and 8. The serous fluid contained 4.63 per cent. of albumen—4.27 per cent. of fat was found."

Case 64. "Dr. Wagstaffe has also reported (*Med. Times and Gazette*, vol. i., 1875) a case suffering from a similar condition. There was not dilatation of the lymphatics to the same extent, but there was also a discharge of a milky fluid from the leg to the amount of one or two pints a day. This had been observed for two months. The disease dated back to four years ago, when the patient had a hydated cyst and abscess of the groin. The cyst was tapped, but refilled. The fluid in this case contained no albumen."

*Case** 65. "The patient was 18 years old and occupied as a waiter. There existed a linear series of hard nodules, subcutaneous or involving the skin, extending from the middle of the forearm into the axilla. The first observed and largest were on the forearm just below the elbow-joint, and these were of the size of a small haricot bean. The smallest were not larger than small shot. The small lumps had not affected the papillary portion of the skin, but the larger lumps were identified with it, and adhered slightly to the fascia beneath. The lower of the two lumps on the forearm was scabbed over and the scale covered in with a buff-colored slough.

"The nodules of the arm were connected together, as it were, by cords more or less marked, beginning from the highest on the forearm.

"There was no tendency to spread laterally. The extension was directed upwards to the axilla, along the line of lymphatic

* Tumors upon the Lymphatics of the Arm.—John Croft, Transac. Path. Soc. London, vol. xxiv., 1873, p. 205.

vessels, rather than of a superficial nerve or vein. The patient first noticed the lumps in the forearm below the bend of the elbow, about one year before admission to the hospital. He was enjoying good health. There was not any history of tumors in his family. He had never had syphilis.

"The growth of the lumps was not attended by any pain, though the axillary tumors were tender on pressure.

"After admission, the lumps showed a tendency to increase in size, though slowly; the slough separated reluctantly from the spot in the forearm.

"Two of the nodules were excised and examined microscopically. Beneath the epithelial layer, which was free from any remarkable change, the bands of connective tissue were thickened generally, though on places replaced by loose open structures. The deeper parts consisted of irregular and spindle-shaped cells with long intervening and anastomosing processes, and interlacing these long elastic fibres very numerous in places. Towards the circumference of the tumor were groups of large oval or roundly oval cells, which were collected among the meshes of connective tissue. Besides these larger cells, some of the sections exhibited considerable masses of smaller round corpuscles of the type of indifferent granulation tissue, and nuclei of this character were traced outwards along the connective tissue between the fat cells."

*Case** 66. "Mrs. H., aged 49, of spare habit, lymphatic temperament, and healthy constitution. Ten years ago perceived a small tumor in the right mamma, the size of a broad bean, movable, unattended with pain or discoloration of the part. No constitutional disturbance; gradually increased to the size of a walnut, still unaccompanied by pain, but occasionally felt in the breast a slight tingling sensation. Plasters and steaming appear to have been the only remedies used by her former medical attendant, after which the surface of the breast became red, and eventually the skin gave way. No matter evacuated, but an irritable sore produced; the diseased portion, the size of a large cork (said to have been carcinomatous, but doubtful as to its real character), was removed by an operation five years ago. The wound has never entirely healed, but continues to this time,

* Sanderson—Curious Development of Morbid Structure in the Right Arm and Hand.—London Lancet, 1838–9, vol ii., pp. 138–9.

exhibiting an ill-conditioned appearance, and discharging a thin sanious matter. Six months after the operation, three or four glands in the axilla became enlarged and painful, and some time afterwards experienced a general sense of numbness to pass down the arm until it reached the hand, when the use of the limb appeared at once to be lost.

"The arm next began to swell, and a dragging, twisting pain to be felt along it; the integuments on the back of the hand especially began to expand, and gradually to develop the extraordinary circumscribed mass of disease it at present exhibits, overhanging and projecting, as it does, several inches beyond the fingers, which seem, as it were, imbedded in it.

"The head obliged to be supported in the direction of the affected side, from the contraction of the muscles, and the natural indication of the body to bend towards the diseased limb.

"The arm is completely covered with a thick brownish incrustation, or a sort of scaly efflorescence; and springing up in different parts of this crust are five or six tubercles, of a dusky red color, slightly sensible to the touch, varying in size from a pea to that of a cherry.

"There is a large massy tumor extending upwards from the dorsum of the hand, in figure and size much resembling a round quartern loaf, or what is generally called an oven or batch-cake; the surface smooth, red, and shining, sensible to the touch, hard and firm, from time to time exhibiting a slight disposition to form a like efflorescence to that on the arm, but only in limited points, where there have first been small ulcerations and a discharge of serosity.

"The fingers are much expanded, flattened, and nearly lost in the tumefaction, with the exception of the little finger, which is nearly absorbed, being reduced to a mere skin. These parts (the fingers) have a moistened or sodden appearance, from a constant oozing of a serous fluid proceeding from the under surface of the tumor.

"The circumference of this enormous enlargement is, at the base, 29 inches, that of the upper arm 19 inches, and that of the lower arm 15 inches.

"The most remarkable fact connected with this interesting case is that, during all this morbid action, carried on for a period of ten years in the breast, and in these parts the general health has been uniformly good up to the present time; appetite excel-

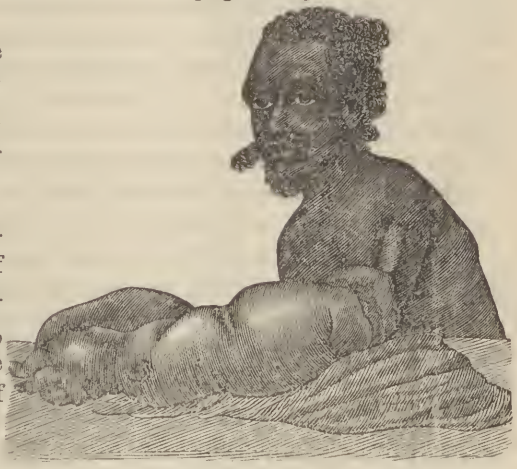
lent; digestion perfect; tongue clean; bowels regular; pulse 75; no fever nor any other constitutional disorder.

"It seems difficult to account for this extraordinary morbid formation, unless we suppose that the irritation excited in the breast, in the first instance, produced a diseased action in the lymphatic vessels and glands, from the axilla downwards, which, by repeated effusions of serous or gelatinous matter poured into the cellular membrane under the thickened skin, and upon the cuticular surface, have produced the present tumid and scaly condition of the limb."

Numerous other cases might be cited illustrating the relation which the glandular complications bear to the stasis of lymph and consequent dilatation of the afferent vessels. Nearly all the cases of 'lymph scrotum' exhibit this connection. In those reported by Manson, the glandular intumescence preceded the formation of the scrotal vesicles.

The following case of "diseased arm"* presents this relation in a somewhat different aspect.

[Figure 30.]



Case 67. "At Tanjore, on the 9th of February, 1796, Piermaul, aged 35 years, asked my assistance for a tumefaction of his left arm.

"It measured round the limb and outside the wrist,	1	ft.	4½ in.
Round the arm above the wrist,	1	"	5 "
Halfway up the forearm,	1	"	7¾ "
Below the elbow-joint,	1	"	7 "
Round the elbow-joint,	1	"	2½ "
Just above the elbow-joint,	1	"	4 "

"The swelling terminated halfway up the humerus, but it was

* Alex. Kennedy, Madras.—Edinburg Medical and Surgical Journal, vol. xiii., 1817, p. 54.

extending upwards and enlarging daily. The skin was rough and scaly, and the enlargement seemed to be prineipally in the muscles, with some thiekening of the skin.

"He eomplained of pain in the axilla, upon pressure, and though no swelling of any of the lymphatie glands could be discovered, there was evidently a eonsiderable thickening of the parts in the left axilla.

"The eireumferenee of the left arm, at the thickest part below the elbow, was 8¼ inehes, and just above the elbow-joint when the arm was extended, 8 inehes. The man was otherwise in perfeet health. He earried this overgrown limb slung round his neek, and eomplained of its weight. He imputed the origin to the following aeeident. Six months before, while in the act of diseharging a matehlock, it burst, wounding his left arm in six different plaees; the prineipal wound was upon the inner side of the elbow. The smaller wounds healed in three months, the largest in four months, during which time great quantities of pus were diseharged and the head of the ulna eame away.

"On the day of the aeeident a swelling eame on, not eonsiderable, but extending from the points of the fingers to a hand's breadth above the elbow. The heat, pain, and throbbing were relieved in a few days by cold applieations, but the swelling never subsided, and when the wounds had healed the left was twice the size of the right arm. At this time an itching and sense of pain began on the back of the hand, and at the roots of the fingers, and the swelling of the hand increased rapidly. The itching and pain extended up the arm, followed by the eonstantly extending and inereasing growth of the parts suceessively attaeked.

"On the 26th of February the arm was amputated at the shoulder-joint. The flesh of the arm appeared of a eolor something between the color of fat and the color of the flesh of an unboiled fish. A vast quantity of serum flowed from it, which, together with its color, led us to eompare it to an immense watermelon. This fluid was pure and colorless, without any red globules; nor did the limb look as if it had ever contained a particle of red blood. The larger vessels completely emptied themselves during the operation, and not even a drop of blood was to be ound in the tissues. Three months afterwards the man was in perfect health."

(To be continued.)

COMPULSORY VACCINATION THE ESTABLISHMENT OF A UNIFORM SYSTEM OF VACCINATION FOR ALL CITIZENS AND INHABITANTS OF THE STATE OP LOUISIANA, BY LEGISLATIVE ENACTMENT.

BY JOSEPH JONES, M.D.,

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At a meeting of the New Orleans Medical and Surgical Association, held November 3d, 1877, Dr. Joseph Jones offered the following:

Resolved, That in consequence of the existence and destructive effects of Small-pox in the city of New Orleans, during the past ten years and ten months, the attempt should be made to circumscribe and arrest the disease, by the proper sanitary regulations and legislative enactments.

Resolved, That the Representatives of the People are empowered to enact suitable laws, for the arrest and complete eradication of Small-pox; and that it is as much the duty of the Government to protect its citizens from this disease as to exclude the introduction of foreign pestilence by quarantine regulations.

Resolved, That a committee of three physicians, members of the New Orleans Medical and Surgical Association, be appointed to address a memorial to the Legislature of Louisiana, urging the necessity of compulsory vaccination.

Dr. Joseph Jones supported the preceding resolutions by the following facts and arguments.

RAVAGES OF SMALL-POX IN LOUISIANA IN FORMER TIMES.

Previous to the introduction of inoculation and vaccination, small-pox committed ravages among the early settlers of Louisiana. The ravages of small-pox are mentioned by historians thirty-four years after the foundation of the colony by the French, under Ibervilie. When Bienville returned to Louisiana, in 1733, after an absence of eight years, his companion, Diron d'Artaguette, thus describes the situation of the colony in a despatch of the 23d of April, from Mobile. "I have found, on my arrival at

this place, two contagious diseases; first, the small-pox, which has carried off, and is still killing every day, a considerable number of persons of both sexes and of every age; and next, a general dearth of provisions, from which everybody is suffering, and which has been the result of the destruction of the late crop by a hurricane." * * * "The colony is on the verge of being depopulated."

Navarro, in a despatch of the 19th of December, 1787, says that in this year small-pox infested the whole Province of Louisiana, and those whom fear prevented from being inoculated became the victims of their prejudice. "All those who were attacked by the contagion either died or were dangerously sick. The inoculation was fatal only to a very few, but this was enough to confirm in their systematic opposition those who declaimed against this wise and humane practice. This disease had struck such terror into the Acadian families, that when one of their number was attacked by the disease, they used to abandon him to solitude and to his fate, leaving him to his own resources, but supplying him with all the provisions and other articles they supposed he would need, although breaking off all communication with him, and thereby depriving him of their assistance. Some of them, however, who were established in Feliciana, and who numbered eighty persons of both sexes and of all ages, had the fortitude to have themselves inoculated, and not one of them had cause to repent having taken that determination."

From the author of "*Vue de la Colonie Espagnole du Mississippi en des Provinces de Louisiane et Floride Occidentale, en l'année* 1802," we gather that, notwithstanding the opposition of the Church and Government to the practice of inoculation when first introduced into the Province, the inhabitants, observing its beneficial effects, practiced it extensively; and finally, the practice became obligatory by legislative enactment, and even the bishop and clergy finally withdrew their opposition.

We are not informed as to the precise date of the introduction of vaccination into Louisiana.

The first edition of *Edward Jenner's* "*Inquiry into the Causes and Effects of the Variolæ Vaccinæ, a disease discovered in some of the Western Counties of England, particularly Gloucestershire, and known by the name of the Cow-pox*," was published in London in 1798; and as far as a careful examination of the earliest historians of Louisiana, and the accounts of earlier voyages up to the

termination of the Spanish rule, extends, the conclusion is reached, that vaccination superseded inoculation at a later date than 1802.

SMALL-POX OF COMPARATIVELY RARE OCCURRENCE FROM 1803 TO 1861.

From the time of the transfer of Louisiana to the United States up to the period of the Civil War, 1861–1865, New Orleans, as well as the entire State of Louisiana, was exempt from widespread and destructive epidemics of small-pox.

It is true, that in 1847 the deaths from small-pox in New Orleans numbered 133; in 1857, 103; and in 1858, 108; but the total deaths from small-pox in these three years preceding the war, in which this disease committed the greatest destruction, did not exceed one-half of the deaths of 1864, which numbered 605; of 1870, 528; of 1873, 503; of 1874, 587; or of 1865, when they numbered 613.

This is a striking and startling fact, when it is conjoined with the fact, that during the past ten years the city of New Orleans has been subjected to an expensive and so-called "*thorough system of disinfection and sanitary inspection.*"

It is true that yellow fever, although prevailing, with the exception of 1867, in circumscribed portions of the city, and causing far fewer deaths than small-pox, has engrossed the greater portion of the attention of the Boards of Health; still in the official reports, we read of numberless sanitary inspections, the lavish use of disinfectants, and the liberal supplies of vaccine matter at the disposal of the public.

NECESSITY FOR LEGISLATIVE ACTION RELATING TO VACCINATION AND SMALL-POX, SHOWN BY THE DESTRUCTIVE EFFECTS AND GRADUAL SPREAD OF THE DISEASE DURING THE PAST TEN YEARS.

We need no other argument to prove the necessity of legislalative action on the subject of the spread and limitation of small-pox, than the record of the monthly and annual mortality occasioned in New Orleans by small-pox.

We shall examine the records of small-pox mortality, under three divisions of time:

1st. Embracing the records of the past ten years.

2d. The preceding ten years, embracing the Civil War, 1861–1865.

3d. The mortuary records preceding the Civil War.

The following table presents the monthly deaths by small-pox during a period of ten years, 1867–1876, during which *disinfection* and *sanitary inspection* have been practiced in New Orleans.

Deaths from Small-pox in New Orleans during a period of 10 *(Ten) Years,* 1867–1876 *inclusive.*

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1867.....	9	13	5	6	6	5	1	1	1	..	..	..	47
1868.....	..	..	...	...	..	..	..	..	..	..	..	..	14
1869.....	3	1	1	2	..	5	..	1	1	5	33	89	141
1870.....	69	56	121	122	78	59	14	4	3	..	1	1	528
1871.....	2	..	...	...	..	..	..	..	..	..	..	..	2
1872.....	..	2	5	5	4	1	..	..	..	1	..	11	29
1873.....	64	83	79	67	71	35	11	2	7	8	27	55	508
1874.....	82	89	99	97	98	66	30	6	6	3	12	7	605
1875.....	32	44	94	62	26	30	27	14	4	4	1	17	342
1876.....	8	25	22	25	11	13	15	6	3	8	24	72	232
Total.....	269	313	426	386	294	214	95	34	25	29	98	252	2448

From the preceding figures, it is evident that during a period of ten years, 1867–1876, inclusive, during which the "*carbolic acid* disinfection" was largely employed, and innumerable "sanitary inspections and reports" were made, 2448 deaths were occasioned by small-pox.

It is also evident from the preceding statistics, that small-pox was independent, in its spread, of all so-called "*measures* of disinfection" and "*gratuitous vaccination*," by the Board of Health and Sanitary inspectors. Thus, of the total of 2448 deaths from small-pox in ten years, only 183 deaths occurred during the *hottest* and *most malarious* months, namely, July, August, September and October.

If the deaths from small-pox had been uniformly distributed throughout each month of the year, then the monthly mortality would have been 204; and the mortality of July, August, September and October, would have reached 816, instead of 183. On

the other hand, more than one-half the entire mortality of the ten years specified, or 1394 deaths by small-pox, occurred during the months of January, February, March and April.

RELATIONS OF SMALL-POX TO TEMPERATURE AND SEASON.

If the year 1874 be selected as the period in which the largest number of deaths occurred (605), for critical study, we observe the following relation between the number of deaths from small-pox and the monthly mean temperature.

	Deaths from Small-pox.	Mean Temperature.		Deaths from Small-pox.	Mean Temperature.
January...	82	56.7° F.	July.....	30	82.3° F.
February..	89	59.5	August...	6	85.0
March....	99	67.8	September	6	80.4
April.....	97	66.2	October...	3	70.9
May.....	98	76.9	November.	12	64.1
June.....	66	82.6	December.	17	59.4

The poison of small-pox, therefore, in New Orleans, appears to be intensified by cold, and dissipated and destroyed by heat.

The diminution and disappearance of the disease in certain months was therefore clearly referable, not to *gratuitous vaccination*, *disinfection*, nor any other sanitary measures instituted by the Board of Health.

Small-pox was least prevalent in precisely those months in which malarial fever and yellow fever committed their greatest ravages.

The following table presents the number of cases of small-pox occurring each month, during five years, 1872, 1873, 1874, 1875, 1876.

	Cases of Small-pox.	Cases of Small-pox	Cases of Small-pox.	Cases of Small-pox.	Cases of Small-pox.	Total.
	1872	1873	1874	1875	1876	
January	6	154	153	93	39	446
February.....	2	194	196	152	69	615
March.....	7	220	203	240	44	714
April.....	23	184	248	132	63	650
May.....	9	160	230	90	31	520
June.....	3	75	141	83	22	324
July	..	21	65	56	22	164
August.....	..	8	12	39	8	67
September.....	1	15	13	7	8	44
October.....	1	14	8	7	31	61
November.....	10	108	23	19	82	252
December	36	146	45	17	167	406
Total Cases.....	98	1300	1338	935	586	4263
Total Deaths.....	40	508	605	342	232	1727
Total Recoveries.	58	792	733	593	354	2536

The reports for the present year, 1877, up to this moment, October 22d, 1877, are still more striking, and justly excite alarm, as foreshadowing still greater ravages by this disease.

Cases, Deaths and Recoveries, by Small-pox in 1877, *up to October 22d*, 1877.

Months.	Cases, Small-pox	Deaths, Small-pox.	Recoveries Small-pox.	Months.	Cases, Small pox.	Deaths, Small-pox.	Recoveries Small-pox.
January	306	148	158	July	83	56	27
February	372	186	186	August	46	22	24
March	502	236	266	September	13	16	0
April	327	157	170	October	4	10	0
May	236	139	97				
June	190	103	87	Total.	2079	1073	1006

In five years, 1872–1876, inclusive, 4263 cases of small-pox were reported, with 1727 deaths, and 2536 recoveries.

If the 2079 cases, 1073 deaths, and 1006 recoveries from small-pox, from the 1st of January, 1877, to the 22d of October, 1877, be added, we have in less than six years 6342 cases, 2803 deaths, and 3539 recoveries, from small-pox in New Orleans. During the same period. yellow fever caused less than one-sixth of the number of deaths, and yet, the whole force of the sanitary legislation of the State, and of the acts of the Board of Health, as well as the public attention, as reflected through the secular press, have been directed to the subject of *yellow fever.*

Total Number of Cases of Small-pox and Varioloid which occurred in New Orleans, during Ten Years and Ten Months, about 33,449.

Whilst the reports of deaths from small-pox may be accepted as accurate, the number of cases reported was far less than the real number, from the fact that many physicians failed to give full returns, and a large number of cases of varioloid, occurring more especially among the poor whites and negroes, were unattended by physicians, and *escaped without being reported or disinfected.*

That a large number of cases of small-pox, which recovered, were not reported, and consequently never were isolated or disinfected, is evident from the significant fact, that in 1874, *of the* 605 *deaths from small-pox*, 150, *or about one-fourth, were certified to by the Coroner.*

These cases became known to the Board of Health, not through the vigilance of the Sanitary Inspectors, but solely by the operation of the law, which required a certificate of burial.

To what extent these 150 unknown, unattended dead, during their last loathsome sickness, contaminated the *unwarned* and *unsuspecting neighbors*, is unknown; certain it is that, the evil which they had unwillingly and ignorantly inflicted upon their fellow-citizens, was arrested neither by the carbolic acid nor sulphurous fumes, nor gratuitous vaccination, of the Board of Health with its energetic corps of Sanitary Inspectors. Neither are we informed of the disposition of the infected clothing and bedding of these miserable victims to a pestilence, which can and must be arrested by compulsory vaccination.

There are, therefore, no statistics to show the exact number of cases of small-pox and varioloid in the city of New Orleans, during the past ten years. The President of the Board of Health, in his official report, estimates that in 1870, when 528 deaths were occasioned by small pox, not less than 5000 cases of small-pox and varioloid occurred; and this would give the proportion of one death from small-pox and varioloid to about 9.5 cases. As according to the official mortuary reports of the Board of Health, 2448 deaths were occasioned by small-pox and varioloid in New Orleans, during the past ten years, 1867–1876, inclusive, the total cases, according to the preceding estimate, would reach about 23,256. And if to this record be added the 1073 deaths, and 10,193 cases of small-pox and varioloid, occurring during the first ten months of 1877, then the total number of cases of small pox and varioloid which have occurred in New Orleans during the past ten years and ten months, amounted to about 33,449. If the population of New Orleans during this period be estimated at 210,000, then according to the preceding calculation, one in every 6.2 inhabitants of the city has been afflicted with small-pox and varioloid.

Thirty three thousand four hundred and forty-nine cases, and *three thousand five hundred and twenty-one deaths from small-pox and varioloid*, in *ten years and ten months*, in New Orleans, do

not indicate any great value in the measures of sanitary inspection, disinfection and free vaccination, instituted by the Board of Health; but such an appalling record does indicate, in the most forcible manner, the most lamentable neglect of the great and efficient means of protection against this disease, namely, VACCINATION.

The Sanitary Inspectors and the Board of Health, without doubt, accomplished some good results amongst that portion of the population which availed itself of *gratuitous vaccination*, and the law which compels the children attending the public schools to exhibit a certificate of successful vaccination, tended to foster the performance of this wise and beneficial operation; but *the fact that every one of the* 210,000 *inhabitants of New Orleans were not afflicted and decimated by small-pox, was due to the persistent and invaluable labors of the enlightened and faithful practitioners of medicine in this city.*

MEASURES FOR THE ARREST OF SMALL-POX IN NEW ORLEANS.

The only measures which will secure the thorough destruction of small-pox in New Orleans, are:

1st. *The constant supply, to the Sanitary Inspectors and practitioners of medicine, of fresh reliable vaccine matter, in quantities sufficient to meet the wants of the entire population.*

2d. *Compulsory vaccination.*

FACTS ILLUSTRATING THE NECESSITY OF COMPULSORY VACCINATION. SMALL-POX MOST PREVALENT AMONGST THE BLACKS.

The importance of COMPULSORY VACCINATION, enforced by LAW, and systematically performed by conscientious and competent medical men, is shown by the fact, that in proportion to the population small-pox has been, during the ten years and ten months specified, *far more prevalent amongst the* BLACKS *than the* WHITES, as will be seen by the following statistics for 1873, 1874, and 1875.

In 1873, of the 508 deaths from small-pox, 108 were white and 400 were colored.

Tabular Statement of Cases of Small-pox reported to the Board of Health, New Orleans, Louisiana, during the Year 1874.

Month.	Number of Cases.	Number of Deaths.	Sex.			Color.		
			Male.	Female.	Not Stated.	White.	Colored.	Not Stated.
January	154	82	78	62	14	53	81	20
February	196	89	98	85	13	96	81	19
March	203	99	116	79	8	97	68	38
April	248	97	160	81	7	148	72	28
May	230	98	125	95	10	70	131	29
June	141	66	71	66	4	67	57	17
July	65	30	42	22	1	42	23	...
August	12	6	8	4	..	8	2	2
September	13	6	9	3	1	11	...	2
October	8	3	5	3	..	2	5	1
November	23	12	8	15	..	13	8	2
December	45	17	24	21	..	18	22	5
Total	1338	605	744	536	58	625	550	163

Six hundred and five deaths by small-pox are at the rate of 2.88 deaths per annum per 1000 population, and 8.90 per cent. of the total death rate. Of 1338 cases of small-pox, 712 were white and 626 colored, a rate of 4.59 cases to 1000 of white population, and 11.38 cases to 1000 of colored population, estimating the white population at 155,000, and the colored at 55,000. The total number of deaths for 1874 was 6798; the total death rate per annum was 32.27, and the annual death rate, had not small-pox prevailed, would have been 29.49.

Tabular Statement of Cases and Deaths by Small-pox, reported to the Board of Health, New Orleans, 1875.

Months.	Total Cases.	Cases. Sex.			Cases. Color.			Total Deaths.	Deaths. Color.		
		Male.	Female	Not Stated.	Whites	Colored	Not Stated.		Whites	Blacks.	Not Stated.
January	93	44	49	0	36	53	4	38	14	24	0
February	153	91	61	0	84	66	2	55	22	32	1
March	240	140	100	0	94	132	14	98	34	61	3
April	132	68	61	3	60	70	2	41	17	24	3
May	90	47	41	2	38	43	9	30	10	20	0
June	83	42	41	0	32	46	5	31	14	15	2
July	56	24	32	0	31	25	0	21	12	9	0
August	39	17	10	2	28	8	3	16	12	4	0
September	7	4	3	0	3	3	1	4	2	1	1
October	7	4	4	0	3	4	0	4	2	2	0
November	19	10	8	1	0	19	0	6	0	6	0
December	17	6	9	2	6	8	3	5	2	3	0
Total	935	496	429	10	415	477	43	342	131	201	10

In 1875, 935 cases of small-pox with 342 deaths were reported; and of cases where color was stated, there were 62 more blacks than whites, and of deaths 70 more. When it is considered that persons claimed as colored constitute but one-fourth of the total population of the city, it is evident that the cases of this disease among colored persons were more than three times the number among the whites. This is due, not so much to an especial susceptibility of those of African descent to small-pox, but chiefly to lack of vaccination.

Progressive Increase of Small-pox in New Orleans during the past Fifteen Years.

A careful examination of the mortuary records of New Orleans reveals the important fact, that during a long series of years preceding the recent American Civil War, New Orleans was comparatively exempt from small-pox. The disease, from 1841 to 1861, attracted so little attention that the pages of the *New Orleans Medical and Surgical Journal*, the great exponent of Southern medicine during that period, are almost absolutely barren of matter relating to small-pox.

Deaths caused by Small-pox in New Orleans during a period of 15 *Years, embracing* 1845, 1847, 1849, 1850, 1853, 1856, 1857, 1858, 1859, 1860, 1863, 1864, 1865, 1866, 1867.

Year.	Deaths from Small-pox.	Year.	Deaths from Small-pox.	Year.	Deaths from Small-pox.
1845.....	1	1856.....	2	1863.....	2
1847.....	27	1857.....	103	1864.....	605
1849.....	133	1858.....	108	1865.....	613
1850.....	37	1859.....	43	1866.....	188
1853.....	17	1860.....	22	1867.....	47
Total.....	215		298		1455

From the preceding table, it is evident that small-pox has progressively increased in the city of New Orleans, since the occupation of the city by the United States forces, under General Butler, during the Civil War of 1861–1865. Thus in 5 years,

embracing 1845, 1847, 1849, 1850, and 1853, small-pox occasioned 215 deaths; in the 5 years embracing 1856, 1857, 1858, 1859, and 1860, the deaths from this disease numbered 298; and in the 5 years, embracing two of war, 1863 and 1864, and one of war and *so-called peace*, 1865, and two of so-called peace, 1866 and 1867, the deaths from small-pox numbered 1455. That is, during the first ten years embraced in the table, 513 deaths were occasioned by small-pox; whilst in the last 5 years, embracing the period of Federal occupation, and the harvest of the immediate results of the Civil War, 1455 deaths from small-pox, occurred out of a total of 1968 deaths in fifteen years.

As we have seen, during the period of "*disinfection and active enlightened sanitary inspection*," embracing ten years and ten months, 3521 deaths were occasioned by small-pox, thus indicating a progressive increase of the disease.

A minute examination of the mortuary records of New Orleans, during the first fifteen years embraced in the table, establishes the greater prevalence of small-pox during the coldest months, and its almost complete disappearance during the hottest months, namely, of July, August, September, and October. Thus in 1849, out of a total of 133 deaths from small-pox, the deaths for January were 17; February, 16; March, 20; April, 25; May, 16; June, 16; July, 3; August, 4; September, 6; October, 1; November, 2; December, 7: 1858, January, 16; February, 19; March, 18; April, 15; May, 11; June, 6; July, 7; August, 3; September, 2; October, 3; November, 4; December, 8—total, 108: 1859, January, 11; February, 7; March, 10; April, 11; May, 3; June, 1; July, 0; August, 0; September. 0; October, 0; November, 0; December, 1—total, 44.

It is evident, therefore, that the supposed effects of vaccination and disinfection, so elaborately detailed in the *post bellum* reports of the Board of Health of the State of Louisiana, were in no manner connected with the uniform diminution of small-pox during the hot months. A critical analysis also reveals the fact, that the deaths from small-pox amongst the colored population during the *period of slavery* were not greater, but on the contrary, less comparatively than during the days of *armed emancipation, reconstruction and freedom*. Thus in 1849, out of a total of 133 deaths from small-pox, 78 were white and 55 colored.

The Increase of Small-pox in New Orleans, during the past Fifteen Years, Due chiefly to the Crowding of the Negro Population, and the Neglect of Vaccination by this class of the population.

Upon a careful consultation of the mortuary records of New Orleans, the conclusion is inevitable, that the great increase of small-pox during the past 14 years and 10 months, 1864–1877, in which 4974 deaths have been occasioned by this disease, is largely due to the emancipation of the negroes, and the consequent neglect of vaccination, poverty, idleness, and crowding in the city. The same increase has been witnessed, since the war, in other Southern towns into which the negroes crowded, as in Augusta and Savannah, Georgia, Nashville, Tennessee, Mobile, Alabama, and Charleston, South Carolina.

The fact that the colored population of New Orleans has rapidly increased, whilst the white population has remained almost stationary, from 1860 up to the present time, may be demonstrated by the following statistics.

Population of New Orleans, 1845–1876.

Year.	Whites.	Blacks and Colored.	Total.
1845.....	.....	.....	108,000
1850.....	89,459	26,916	116,375
1860.....	144,596	27,074	168,670
1870.....	140,923	50,456	191,418
1876.....	155,000	55,000	210,000

The figures for 1876 are merely approximate, whilst those for 1850, 1860 and 1870, are drawn from the United States Census.

During a period of sixteen years, 1845–1860 inclusive, the population of New Orleans increased from 108,000 to 168,670, being an actual gain of 60,670. During the succeeding sixteen years, 1861–1876 inclusive, the population increased from 168,670 to about 210,054; total increase during this period, 51,384. The increase of population, according to this approximate estimate, was therefore 9186 less than during the preceding sixteen years (1845–1860). The increase was actually less than that indicated in the figures, as the town of Carrollton was not incorporated with the city until April 1st, 1874.

The estimate of 155,000 white inhabitants for 1876, as given by the Board of Health in its official mortuary reports, is perhaps too high, especially as it will be seen from the records of the United States Census, that while in 1860 the white population numbered 144 596, in 1870 it had decreased to 140,923, showing an actual loss, in ten years, of 3673.

On the other hand, the blacks and colored had increased from 27,074 in 1860 to 50,456 in 1870; increase of blacks and colored during this period, 23,382.

Whilst the negro population of New Orleans had nearly doubled itself in these 10 years, 1860–1870, inclusive, on the contrary, during the ten years preceding 1850–1860, the white population had increased from 89,459 to 144,596, showing a gain of 55,137; and the negro population from 26,916 to 27,074, showing a gain in this element of only 158.

A complete revolution, therefore, was made in the population of New Orleans by the results of the Civil War.

The loss of 3673 white citizens during the period embracing the Civil War, 1860–1870, did not represent the actual destruction occasioned amongst the whites by the casualties of the war, for it will be admitted on all hands, that a large immigration set in to New Orleans from all parts of the Southern States after the close of the war, and this city probably contained a larger white population in 1866 and 1867 than at any previous or subsequent time. The decrease in the white population of New Orleans after the Civil War appears to have been caused chiefly by the *so-called reconstruction measures* of the Republican Party of the Northern States, *vigorously executed by the President of the United States.*

By the absorption of all public offices by men *alien* to the people of Louisiana, by the reckless waste of the illegal and ruinous taxes wrung from the *conquered* province, by the disfranchisement of her best citizens, and by the destruction of her resources and credit, the tide of white immigration was not only turned from Louisiana, but thousands of her best white citizens left New Orleans.

The white population of New Orleans, therefore, during the sixteen years, 1861–1876, inclusive, so far from receiving any actual and substantial additions by foreign and domestic immigration, actually lost a considerable portion of its permanent

population, who sought their fortunes elsewhere in Texas and other States.

On the other hand the colored race, allured by the prospects of political elevation, abundance, ease and amusement, flocked from the country to the city. The colored population was thus augmented, not by an actual increase of births but by immigration; *and such increase was not justified by increased facilities of commerce and labor.*

Without doubt much suffering has been occasioned by this influx of people, devoid to a great extent of capital, and in many cases unable to secure comfortable and healthy habitations.

It is impossible to over-estimate the difficulties of arresting and eradicating small-pox in a population thus situated.

As it is the duty of those charged by the State to direct the sanitary affairs of the people to devise measures salutary to all citizens, the preceding facts have been fully and candidly stated.

General Conclusions from the preceding facts, and Measures Proposed for the Consideration of the Legislature of Louisiana, for the Arrest and Total Eradication of Small-pox.

1st. During a period of ten years and ten months, 1867–1877, in which the attempt has been made in New Orleans to arrest small-pox by disinfection, isolation, and the removal of patients to a *small-pox hospital*, the disease has prevailed to a greater extent than ever before, in the history of this city, during the American domination,

2d. Whilst the greater prevalence of small-pox, during the period specified, is not chargeable to the inefficiency and neglect of the Board of Health of the State of Louisiana, at the same time it is evident that the system of disinfection with carbolic acid and sulphurous acid, practiced in New Orleans by the sanitary authorities, has been utterly valueless and useless for the arrest and eradication of this disease.

It would be as easy to chain the mouth of the Mississippi with ropes of sand, as to arrest this loathsome and fearfully contagious disease simply by burning sulphur and scattering carbolic acid.

3d. The only known means of arresting small-pox is *universal vaccination and re-vaccination*, at stated intervals.

Inoculation, properly performed, is comparatively light in its effects, and occasions but slight mortality—not more than one death occurring, under favorable circumstances, in every five or six hundred persons inoculated. The process of inoculation is equally protective against the natural small-pox, but the grand objection against this procedure is, that each inoculated individual becomes a centre for the perpetuation and dissemination of small-pox.

No such objection applies to the milder and absolutely non-contagious disease produced by the cow-pox.

From authentic documents and accurate calculations, it has been ascertained that one in fourteen of all that were born died of small-pox, even after inoculation had been introduced; and of persons taken ill of small-pox in the natural way, one in five or six died; and in addition to this frightful mortality, alike observable in all the different regions of the globe, many of those who recovered were permanently disfigured, or deprived of eyesight, or left with shattered constitutions, the prey to pulmonary consumption, chronic ophthalmia, and scrofula. According to the researches of Black, Lussmileh, and Frank, eight or nine per cent. of the human race were carried off by small-pox; and Duvillard endeavored to show that of 100 persons, only four reached the age of thirty years without having it; that one in seven or eight who were affected died; and that of those who were attacked in infancy, only two-thirds escaped.

Before the introduction of vaccination, small-pox was infinitely more destructive to human life than the plague itself; it has swept away whole tribes of savages and half-civilized people; and its innumerable victims have been abandoned by their nearest relatives and friends, as persons doomed by Divine wrath to irrecoverable death. It was calculated that 210,000 fell victims to it annually in Europe; and Bernouville believed that not less than fifteen millions of human beings were destroyed by the small-pox every twenty-five years, that is six hundred thousand annually; and this loathsome disease was not only universal in its ravages, but was so subtle in its influence and insidious in its attack, that all efforts to stay its violence, or to prevent its approach, were utterly futile. Even inoculation, whilst it was far less severe and fatal than the natural small-pox, and thus benefitted the individual, tended nevertheless to increase the spread of the disease, and its extensive adoption was attended with a

most marked increase of mortality of the disease in the human race.

By the unaided efforts of a man, emulous not of distinction, but desirous of advancing truth and promoting the happiness and well-being of his fellow-creatures, and distinguished as much for his humility, long-suffering and perseverance, as for his unsurpassed powers of practical observation, the world has been furnished with the means of completely eradicating this terrible scourge, by substituting the same disease in a mild modified form, non-communicable by effluvia, and capable of affording complete immunity from the natural small-pox.

4th. Each unprotected inhabitant who neglects or wilfully refuses vaccination is a source of constant danger to himself, to his family, to his neighbors, and to the whole community; and the State has the power and the right to institute at the hands of competent medical men, COMPULSORY VACCINATION, for the full and equal protection of all her citizens.

The true theory of a democratic form of government is the equal protection of life, property and happiness, of all alike, by wise and just laws, and the absolute subjection of all, both the *governors* and the governed, to LAW.

Compulsory vaccination, in that it protects all alike from pestilence, suffering and death, is thus a democratic measure, designed to bestow the greatest freedom and the greatest happiness upon all alike, regardless of place, or position or race.

The requirement of certificates of successful vaccination before admission of children into public schools, accomplishes some good, but the measure is too weak and partial in its operation to reach the root of the difficulty.

Small-pox can be successfully combatted and eradicated only by the thorough vaccination of every man, woman and child.

It would be difficult to estimate in dollars and cents the actual pecuniary loss to a large city like New Orleans, or to the great and rich commonwealth of Louisiana, of the 33,449 cases of small-pox, with 3521 deaths; and as a numerous, vigorous and enlightened population, is of the highest importance to her welfare and advancement, it should be the sacred duty of legislators to enact such laws as will best protect the health and lives of the people; and it is the duty of physicians, who are by virtue of their profession the friends and advisers of the people, to inform them and their rulers of the essential measures necessary to secure these ends.

6th. The system of Sanitary Inspection carried out by the Board of Health of the State of Louisiana, during the past ten years and ten months, is inefficient, and utterly inadequate to the proper discovery, isolation, disinfection and arrest of small-pox.

7th. The system of gratuitous vaccination by the Board of Health and its Sanitary Inspectors, has failed materially to influence the spread of the disease, for small-pox has been less prevalent in those years in which no such offer was made to the public.

8th. Depots of reliable and fresh vaccine matter should be maintained at central points in the city of New Orleans, and over the entire State of Louisiana.

9th. One responsible physician, distinguished for intelligence and energy, should be appointed in each Congressional District, and commissioned by the State as a superintendent of vaccination.

Said superintendents should be appointed by and act under the direction and control of the Board of Health of the State of Louisiana.

It should be the duty of each superintendent of vaccination to make an accurate census of his district, and record the number of vaccinated and unvaccinated inhabitants, and also those who have suffered from small-pox in the natural way. It should be the duty of the superintendent of vaccination to vaccinate all those who have not been vaccinated or who have not suffered with the small-pox. An annual census of each district, together with the total number of cases of small-pox and varioloid, and the total number of successful vaccinations, should be furnished the Board of Health of the State of Louisiana. In case of the refusal of any individual, or individuals, to subject themselves to vaccination at the hands of the superintendent of vaccination, or by some regular practitioner of medicine, such individual or individuals to be dealt with in accordance with such laws as the Legislature of Louisiana may enact for the regulation of vaccination. The superintendents of vaccination shall be constituted the custodians of vaccine matter, and shall respond to the calls of the practitioners of medicine for such matter, and they shall in no manner interfere with the performance of vaccination by the medical profession in their respective districts.

CURRENT MEDICAL LITERATURE.

A CASE OF VOMITING IN PREGNANCY SUCCESSFULLY TREATED WITH INGLUVIN (VENTRICULUS CALLOSUS GALINACEUS).

By Charles G. Frowert, M.D, Philadelphia, Pa.

I was called to see Mrs. S., aged 27 years, June 8, 1877, who stated that she was suffering from constant and excessive nausea, which was only relieved upon assuming the recumbent posture. This continued, gradually increasing from day to day, until in a week it eventuated in retching and emesis, during which watery matter with an acid taste, followed by bile, was ejected. This reached such an extent that the patient had hardly any freedom from it during the whole twenty-four hours, vomiting as often as twelve times a day.

Taking this in connection with suppression of the menses, I concluded she was pregnant, and obtained from her the following history:

This was her third pregnancy. With the two preceding ones she suffered quite as much as with this, and, according to her statement, "had employed the services of several physicians, who administered almost every medicine in the pharmacopœia," but without avail, and she was obliged to lie in bed almost the entire nine months, in order to obtain relief from vomiting.

I proceeded to treat her in the orthodox way; advised the administration of a gentle cathartic, and gave carbonic-acid water freely, and prescribed the following:

℞—Bismuth subnit., - - - ʒ j.,
Pepsine sacch., - - - ʒ ss.,
Cerii oxalat., - - - - gr. ix.

M. In chart. No. vj. Div. et sig. one every two hours in carbonic-acid water.

This was not followed by the slightest remission in the symptoms.

I then doubled the quantity in each powder; this also failed.

I finally increased the subnitrate of bismuth to ʒ i. doses every three hours, as recommended by several eminent physicians. This was followed by acid, hydrocyanic. dil., two drops every three hours, also highly spoken of. Various hygienic measures, as well as some other medicines, were resorted to, but all failed to bring about the desired relief.

About this time my attention was called to the preparation *ingluvin*, recommended in cases of this kind, and I determined to try it at once.

I prescribed *five grains* of Warner's ingluvin every two hours, and continued this for three or four days, without any apprecia-

ble result other than diminishing the violence of the attacks of retching and vomiting.

Increased the dose to *ten grains* every two hours. This seemed to relieve my patient to such an extent that she only vomited before meals, at the sight or smell of food.

I then increased the dose to fifteen grains, giving it half an hour before each meal. This soon had the desired effect of controlling the attacks. Continuing the same dose every three hours, the vomiting and nausea ceased entirely in four or five days.

She made a complete recovery in the second month of her pregnancy, in three weeks from the time she commenced the use of ingluvin.

Ingluvin has certainly proved very efficacious in my hands, and I would therefore cordially recommend it to the medical profession as worthy of a trial. I consider it an invaluable remedy in obstinate cases of vomiting in pregnancy.

I might also add that I have used ingluvin successfully in several cases of chronic dyspepsia, in which pepsin had failed.—*Medical Record.*

PRICKLY HEAT.

To the Editor of the Lancet:

Sir—I should like to bring before the section of the profession practising in tropical climates the following powder as a cure for that troublesome skin disease, "prickly heat." I used to suffer myself dreadfully, and tried all the supposed remedies, without deriving any apparent good. Some, as carbolic acid, appeared to produce intolerable itching at night. Lately I have seen the local application of sulphate of copper recommended. The powder has the following percentage composition :—

Sulphur sub., - - - - - -	80
Magnes ox., - - - - - -	15
Zinci ox., - - - - - - -	5
	100

To be used morning and evening in the following way: The dry powder being on a plate, a wet sponge is pressed down on it, and a certain quantity will adhere; this firmly rubbed on the parts affected, fresh moisture and powder being from time to time supplied, the application being continued ten to fifteen minutes each sitting. The parts are then washed clean of the adhering particles. I have never seen the worst cases last beyond four or five days. So complete would the cure be that it would be impossible to say if the person ever had the disease. No smarting attends its use, and after the first application itching is practically at an end. Also in that form of prickly heat

resembling urticaria it effects a perfect cure, and the powder used once or twice a week as described will keep the skin in a perfect condition. I expect the sulphur acts as stimulant, the magnesia as stimulant neutralizing the free acid of the sweat, and the oxide of zinc as astringent. Be that, however, as it may, its effects on the skin are certainly remarkable, and I should like to hear of success attending its use. I am, sir, yours, &c., HENRY LEVINGE, A.B., M.B., Surgeon, R.N.H.M.S. *Topaze*, Jan. 25th, 1877.—*Canadian Journal.*

HERPES ZOSTER TREATED BY CHLOROFORM INJECTIONS.

Mr. J. O'N., twenty-three years old, entered the hospital July 23d with the following history: Ten days before, he began to be annoyed with pain in the chest about both nipples. In the course of a few days he noticed an eruption on the right side, which continued up to entrance. At that time the pain, severe in character, was mostly confined to the seat of eruption, extending across the axilla up to the right shoulder and down the arm towards the elbow. Appetite and digestion were good. Bowels and micturition were normal. Pulse 96. Temperature 100°. An injection of fifteen minims of chloroform were ordered night and morning, locally in the affected side. After two or three injections the pain was entirely relieved, and remained so, while the eruption, which was a well-marked type of herpes zoster, left to itself, healed rapidly, and the patient was discharged, well, August 1st.—*Boston Medical and Surgical Journal.*

EFFECTS OF BREATHING FOUL AIR.

The air we breathe, which a great English physician calls gaseous food, may become impure to the degree of being *indigestible* to our lungs, and utterly unfit for the performance of functions which are quite as important as those of our solid and fluid victuals. Dull headaches, nausea, loss of appetite and of the sense of smell, and the sadness produced by the unsatisfied hunger after oxygen, are only incidental and secondary evils; the great principal curse of the troglodyte habit is its influence on the respiratory organs. In 1853, when Hanover and other parts of Norther Germany were visited by a very malignant kind of small-pox, the great anatomist, Langenbeck, tried to discover "the peculiarity of organic structure which disposes one man to catch the disease, while his neighbor escapes. * * * I have cut up more human bodies than the Old Man of the Mountains, with all his accomplices," he writes from Göttingen, in his semi-annual report, "and, speaking only of my primary

object, I must confess that I am no wiser than before. But, though the mystery of small-pox has eluded my search, my labors have not been in vain, they have revealed to me something else—the origin of consumption. I am sure now of what I suspected long ago—viz.; that pulmonary diseases have very little to do with intemperance or with erotic excesses, and much less with cold weather, but are nearly exclusively (if we except tuberculous tendencies inherited from *both* parents, I say *quite* exclusively) produced by the breathing of foul air. The lungs of all persons, minors included, who had worked for some years in close workshops and dusty factories, showed the germs of the fatal disease; while confirmed inebriates, who had passed their days in open air, had preserved their respiratory organs intact, whatever inroads their excesses had made on the rest of their system. If I should go into practice, and undertake the cure of a consumptive, I should begin by driving him out into the *Deister* (a densely-wooded mountain range of Hanover), and prevent him from entering a house for a year or two."—*From "Modern Troglodytes," in Popular Science Monthly for November.*

TREATMENT FOR PROLAPSUS OF THE RECTUM.

By E. Delens, (*Journ. de Therap.*, No. 4, 1876).

Allingham's treatment modified is made use of by this author. He cauterizes that portion of the intestinal mucous membrane which projects through the sphincter with fuming nitric acid, then the tumor is smeared with olive oil, and the mass returned to its natural place. A tampon is then introduced, which overdistends the rectum, and a bandage is applied to the perineum. The patient should be kept in bed for five or six days, and the peristaltic action of the intestines should be interrupted by morphia. Faradization of the sphincter is indicated daily for five minutes at each sitting. The cauterization causes inflammation of the submucous cellular tissue and the distension admits of permanent adhesions, which hold the bowel in situ, and prevents further prolapsus.—*Maryland Medical Journal.*

POISONING BY CARBOLIC ACID TREATED BY APOMORPHIA.

G. W. Semple states that a patient took by mistake two teaspoonfuls of strong carbolic acid. In a few minutes she was in a state of great debility, and complained of a violent burning sensation from the fauces to the stomach. The pulse was full, slow, regular and strong. Solution of bicarbonate of soda was ordered and taken. She quickly, however, fell into a semi-comatose state, and was with difficulty made to swallow six ounces of

olive oil. Forty minutes after taking the poison, rather more than ½ a grain of apomorphia in twelve minims of water was injected subcutaneously. In three minutes there was copious emesis, which continued at intervals of twenty minutes for an hour and a half. A very large fæcal evacuation followed, with an abundant flow of a smoky-colored urine, having a strong odor of carbolic acid. Recovery, without ill effects, took place. Dr. Semple lays great stress on the rapidity with which the apomorphia acted as an emetic, and strongly recommends all who practice to keep it in solution, as it requires some time to make up.—*Practitioner.*

A SIMPLE MEANS OF LESSENING THE PAIN ATTENDING BLISTERS.

The practice of blistering in the treatment of acute articular rheumatism would meet with much more favor in this country if pain and, in certain cases, strangury and slight hæmaturia, were not inherent to this mode of treatment. A hypodermic injection of morphia relieves the pain, but has no effect upon the urinary troubles. To alleviate the one and prevent the other, M. Ernest Besnier proposes the following plan. Take care that the blister is applied in the early morning; those convenient ones which are covered with a sheet of oiled tissue paper will cause very little suffering, and never give rise to those vesicatory or renal troubles which are now and then so severe and painful, provided the blister be removed after a few hours, five to ten at the outside, as soon as the epidermis begins to rise slightly and partly, which we may recognize by the skin becoming pearly and irritated. The plaster must then be removed (a very few hours' application is sufficient for a child or a thin-skinned person), and its place must be supplied by a piece of blotting-paper very thickly coated with cerate or cold cream. The vesication continues almost painlessly, and the blisters rise nearly as well as if the cantharides had been kept applied. The practitioner who does not disdain to attend to such minute details will gain the thanks of his patient, and more especially of those who have been previously treated by such inhuman proceedings as are common where blistering is employed.—*London Medical Record*, February 15, 1877.

HYDROBROMATE OF QUINIA IN DISEASES OF CHILDREN.

In a communication to the *Algemeine Medicin Central Zeitung* (No. 53, 1876), Dr. Steinitz, of Breslau, gives the results of his experience of the use of hydrobromate of quinia in children's diseases.

He used it in an extensively prevailing epidemic of whooping-

cough, giving it generally in a mixture composed of three to five parts of the hydrobromate in one thousand of syrup, the dose being a teaspoonful every two hours. In no case was it necessary to use any other remedies. The whooping-cough had in twenty-three cases lasted on an average ten weeks, and in fifteen others twelve weeks, and in the use of the remedy the paroxysms became, in the course of a week, less frequent and milder. No after-effects on the elementary canal were discovered. Three deaths occurred, all in very atrophic and scrofulous individuals, in whom other complications were present. Dr. Steinitz takes the opportunity of remarking that he prescribed in several cases the extract of castanea vesica, which has been extolled as a remedy, but without good results.

He also used the hydrobromate of quinia in nine cases of spasm of the glottis. Three of the patients died after only a few paroxysms. The remaining six recovered. The medicine was prescribed as stated above, and was borne well. In all the six cases the attacks diminished, at times varying from the third to the fifth week in intensity as well as in frequency; and the duration of the disease was in no case longer than from four to six months. This result is satisfactory when compared with the previous course of the disease under the use of other medicines, such as the bromide of potassium, oxide of zinc, valerian and musk, none of which could be borne for several months together.

Dr. Steinitz has also given the hydrobromate of quinia in the dental convulsions of children, but cannot as yet speak of its efficacy in this malady. He regards it, however, as deserving a trial. *London Medical Record*, February 15, 1877.

SCRIBA ON GONARTHROTOMY.

Dr. J. Scriba, of Freiberg, in a contribution on gonarthrotomy and its indications (*Berliner Klinische Wochenschrift*, No. 32, 33, 1877), advocates the practice of free incision and drainage, under strict antiseptic conditions, in the treatment of various forms of disease of the knee. In support of his views as to the efficacy of this plan of treatment, the reports of twelve cases are given. Seven of these were cases of acute suppuration of the joint. In four of the seven cases there was a good recovery, with perfect mobility of the joint, and in the remaining three cases the result was fatal. In one of the successful cases the suppuration had been due to acute rheumatism, in two to injury, and in the fourth to chronic disease. The joint-affection in two of the unsuccessful cases was the result of acute phlegmonous erysipelas, and in one of caries. The eighth case, one of hydrops articuli, was a successful one. The remaining four were cases of fungous inflammation of the joint, of which three, in consequence of complications of caries and tuberculosis, terminated fatally.

The following are some of the chief points of interest in the author's remarks on the indications for gonarthrotomy under antiseptic conditions. This practice should not be carried out, save as a last resource in cases of acute serous gonitis. It is indicated in cases of acute purulent gonarthro-meningitis, in order to prevent ulcerative destruction of the epiphysal cartilage; and should be carried out also where there is osteomyelitis of one or both epiphyses; so that, through drainage, the risks of pyæmia, pneumonia, and other acute infective diseases, may be diminished. Gonarthrotomy is not so urgently and promptly demanded in cases of acute intra-articular suppuration due to injury, and to acute and gonorrhœal rheumatism. Here the prognosis is more favorable, the affection being usually less acute and uncomplicated by severe general phenomena. In the treatment of cases of chronic inflammation of the articular synovial membrane of the knee-joint, free incisions with drainage are to be preferred to the injection of irritating agents into the synovial cavity. In those forms of fungus gonitis, in which fluid secretion is a much more predominant element than fungous growth, and in which the cartilages are still intact, gonarthrotomy, in the author's opinion, is the only rational method of treatment. In those forms in which fungous degeneration is well developed, so long as caries is not present, the joint should be incised and drained whenever a spontaneous opening is threatened, and after unsuccessful treatment by prolonged rest. In cases of fungous gonitis, complicated with caries, no proceeding short of resection is likely to prove of any service. Incision with drainage and gouging away of the diseased portions of bone can be justifiably practised only under certain conditions. The patient must be young, the lesion strictly local, and uncomplicated with tubercle in the joint or in any remote organ. The author is strongly opposed to the practice of gouging away carious bone from a diseased joint in an adult, and regards such a proceeding as a useless attack on the strength of the patient. He is of opinion that in early stages of fungous knee-disease, and when the bones are not diseased, resection should not be performed. It is laid down as a law that, the earlier the stage of fungous inflammation of the knee with which the surgeon has to deal, the better are the prospects of enabling the patient, through gonarthrotomy, to retain an useful and movable joint.

In conclusion, Dr. Scriba insists on the importance, in cases of convalescence from disease of the knee, of commencing passive movements at an early period. In two of the reported cases the leg was flexed, and extended immediately after the removal of the drainage tube; and subsequently at every change of splint and dressings. As soon as the wounds are closed, more frequent and active movements, should, it is stated, be effected, and the patient be allowed to stand up.—W. Johnson Smith, *Lond. Med. Record.*

HEIDENHAIN ON THE ETIOLOGY OF PNEUMONIA.

Dr. Bernhard Heidenhain (*Virchow's Archiv*, August, 1877) refers to the question debated of late years as to whether pneumonia is an infectious disease or not. He thinks that it is evident that if the disease can be produced by a non-specific irritant, the infection theory must fall. He first experimented by making animals breathe very hot air for fifteen minutes, thirty minutes, or longer; they died after three, five, or seven days, and their lungs were perfectly healthy. He then tried the opposite experiment with cold air, and here also got a negative result. During the experiment on one animal, the blood pressure in the carotid and the temperature in the rectum were observed, and found to be not affected in any noteworthy manner. He next made use of an apparatus by which the bulb of a long thermometer was inserted down as far as the bifurcation of the trachea, so as to be able to determine the actual temperature of the air received by the lungs. He found that dry air at any temperature remained innocuous. On the other hand, steam produced catarrhal inflammation of the air passages and air cells, if heated up to 55° C. (131° F.), and the same result occurred with vinegar vapor. Other chemical agents (chlorine, fuming nitric acid, etc.) killed the animals, but left the lungs healthy. But he admits that the characters of the anatomical changes, whether they extended to a part or the whole of a lobe, were never those of croupous pneumonia, but were primarily affections of the trachea and bronchi, the lung affection being secondary, and resembled the catarrhal pneumonia or broncho-pneumonia of human pathology. He concludes therefore that croupous pneumonia requires a specific agent for its production.—*London Medical Record.*

ABDOMINAL AORTA NEARLY SEVERED BY A BULLET—LIFE REMAINING AT LEAST AN HOUR AND TEN MINUTES.

Read before the Detroit Academy of Medicine by Dr. Judson Bradley.

On the 4th of June, 1876, I was ordered to make, next day, a post mortem examination on the body of Martin Connors, who was killed by a bullet shot from a pistol on that day, to find the bullet. On the morning of the 5th of June, 1876, I made the autopsy as ordered by the coroner.

Laying open the skin and muscles where the bullet entered the body of the dead man, I found that the bullet had passed through between the seventh and eighth ribs on the left side, about four inches from the median line. In its course it notched the upper border of the eighth rib.

Opening the abdomen, I at first encountered a large quantity of serum and clots, the result of internal hemorrhage. I care-

fully removed the serum and clots, and satisfied myself that the bullet had not been taken out with them.

I then removed the stomach and bowels with care, and found that the bullet, in a downward and backward course, had passed through the stomach from the upper and front part of the cardia extremity to the lower and back part of the pyloric extremity, thence through the pancreas, under the aorta, nearly severing it, and impinging on the spinal column about the first lumbar vertebra, again turned back and passed under the ascending vena cava, cut the right renal vein, and lodged in the right lobe of the liver near the right lateral border, where I secured it.

Now I should feel as if I ought to apologize to the Academy for introducing so ordinary an account of an autopsy to the attention of the members, if I did not wish to call attention to the length of time that the man Connors lived after the fatal wound.

The shooting was done at the new water works, in Hamtramck, two miles from my office. A messenger came for me with horse and buggy, and I returned with him, time at least twenty minutes. Sent for a wagon to remove the man to the nearest house. This occupied at least twenty minutes more, as no wagon could be found until after inquiry. Then say ten minutes to place the man in the wagon and drive nearly a fourth of a mile, five minutes more to arrange a bed in a room for the reception of the wounded man, on which having been placed, the man breathed his last at the expiration of ten minutes, or at least one hour and ten minutes after the bullet entered the body.

If a small artery be cut, as the carotid, a man will bleed to death in a few minutes, or as Erichsen puts it, "the wound will prove immediately fatal." But here was a man with the abdominal aorta severed in at least three-fourths of its circumference by the passage of a bullet through it, whose death was delayed by the resistance of the peritoneum and fibro-cellular tissues surrounding the aorta to the comparatively long time of one hour and ten minutes at the very least.

This case has been interesting to me particularly as unsettling my convictions as to the time required for a man to die under such peculiarly fatal wounds. If, before seeing this case, a person had asked me the question, "How long could or ought a man to live under such circumstances?" I should have replied without hesitation, "five minutes," and should have been very far from the truth.—*Detroit Medical Journal.*

CORRESPONDENCE.

NEW YORK, Dec. 15th, 1877.

To the Editors of the New Orleans Medical and Surgical Journal:

Dear Sirs—During a recent visit to the national capital, your correspondent availed himself of the opportunity to observe some

matters in that city which may be of interest to your readers. The beautiful city of Washington has a population of 160,000, and there are two hundred regular physicians pursuing their calling within the city limits. Here, as in other cities of large size throughout our republic, medical colleges are to be found in goodly number. Washington furnishes three to the long list, viz., the Georgetown Medical College, the National Medical College, and the Medical Department of Howard University, the latter being among the numerous institutions which of latter years have been established by the Government, and which are popularly known as "jobs." The classes of these institutions are rather small, but from the information received from some recent graduates of the Georgetown Medical College, it seems that the course of instruction in that institution is quite thorough. Washington is quite well supplied with hospitals, having the following excellent charities: the Providence Hospital, the Columbia Hospital, for Women, the Children's Hospital, the Naval Hospital, the Freedmen's Hospital and the Barnes' Hospital at the Soldier's Home. The latter is one of the most admirably arranged institutions in the entire country, having been designed and its construction superintended by Dr. John S. Billings of the U. S. Army. One of the most unique and admirable features of its construction is the arrangement of the kitchen, pantry, etc., this entire department being situated at the top of the building, thus thoroughly excluding from the wards and rooms the fumes from the kitchen

The Medical Society of the District of Columbia is quite an old society, and a very useful one. The meeting which it was my privilege to attend, exhibited a prompt and active membership, and was presided over with grace and dignity by Dr. S. C. Busey, whose valuable researches upon the lymphatic system have enriched the pages of this journal during the past year.

By far the most interesting place in Washington to the medical visitor, is the Army Medical Museum and the library of the Surgeon General's Office. The museum and library are contained in one and the same building, which building furnished the scene for enacting the most tragic event in our national history. It was formerly used as a theatre, and was the place where Mr. Lincoln was assassinated. Both the museum and the library are vast storehouses of knowledge, and are highly creditable to the nation and the profession. The library is under the able supervision of Dr. Billings, while the museum is under the special care of

Dr. Woodward. Both these gentlemen are well known to the profession, at home and abroad, as men of the highest order of ability, and possessed of a wonderful degree of industry. Surely the museum and the library, to say nothing of their published works, are monuments to their skilled knowledge and their industry. In the museum may be observed a valuable collection of urinary calculi, presented by Dr. Paul F. Eve, of Nashville, who has recently passed away after a long and distinguished career as a surgeon.

While in Washington, we visited that very distinguished medical scholar, Dr. J. M. Toner, whose valuable contributions to medical literature are so widely known and so highly valued among medical men. Dr. T. has a delightful home on Louisiana Avenue, and the entire house, from basement to attic inclusive, is used for storing his very valuable library. The double office, the parlor, the halls, the dining room, and the bed-rooms, all are utilized to their full capacity to give place to this valuable storehouse of historic, scientific, and professional knowledge. The doctor informed us that he was desirous of donating this splendid library to the medical profession of that portion of our country where it is most needed, and where it will do the greatest amount of good. The great libraries of the east, and that of the Surgeon General at Washington, furnish every necessary advantage to the profession of those regions for investigating special subjects. This prize has been offered to the profession of Chicago, and steps are now being taken by the profession of that city to secure it.

The conditions of the donation exacted by Dr. Toner are that a fireproof building shall be furnished for the library, and that it bear his name. The donation of this library, which has been collected at great expense and painstaking care through many years, to the medical profession, for its advancement and improvement, is an act of generous philanthropy which should elicit the highest esteem and admiration. While in Dr. Toner's office, he received the splendid volume of the Transactions of the International Medical Congress, held at Philadelphia. On looking over its pages, we observed an article on Medical Biography, by Dr. Toner. One may search in vain for an article of similar space containing more information, or exhibiting more thorough research.

On arriving in New York, we found matters in medical circles

quite active. Those members of the profession who had been taking a holiday abroad and in the mountains had returned to their duties, the medical schools were well into the winter session, and the societies had resumed work for the winter.

At the present time there are more than a thousand students pursuing their studies at the three medical schools of this city. The number is about equally divided among the three institutions, the College of Physicians and Surgeons having probably a slightly larger number of matriculants than the Bellevue Hospital Medical College, or the University Medical College. One cannot but observe that the College of Physicians and Surgeons is the favorite school with the residents of the city and State of New York. The class of this institution is very largely composed of city men, and for the most part of eastern men. In addition to the clinics held at the college, the students of this institution have access to the amphitheatre of Bellevue Hospital, the Charity Hospital, the Roosevelt Hospital, and the Manhattan Eye and Ear Hospital. Notwithstanding the large amount of clinical material furnished by these institutions, the lectures are for the most part didactic, and at the clinics the patient is simply exhibited to the students. In fact, at no medical school in New York do students have those advantages for familiarizing themselves with disease and injury, and acquiring skill in diagnosis and treatment by personal observation and clinical experience, which are furnished the students of the University of Louisiana.

The Faculty of the College of Physicians and Surgeons is composed of men who are widely and favorably known to the medical profession as practitioners and as authors of the highest order of ability. As representatives of the former class in medicine and surgery, may be mentioned Drs. Alonzo Clark and H. B. Sands, and of the latter class, Drs. Dalton, Seguin, Thomas, and Jacobi. As lecturers and teachers, those of the faculty whom I have heard are quite inferior to many teachers in the south and west. The lectures of Dr. T. Gaillard Thomas, upon the Diseases of Women, attract large audiences, and indeed he is a very fine teacher. His lectures, which are very lucid and impressive, are delivered in a simple and pleasing style, and are highly interesting and instructive. Dr. Thomas is considered by many to be the best lecturer of the metropolis. In striking contrast with the style and forcible simplicity of Dr. Thomas is the manner of

Dr. Delafield, who shares the chair of Practice of Medicine with Dr. Clark. With a drawling voice and awkward manner, Dr. D. makes his lectures tedious and irksome.

The Bellevue Hospital Medical College and the Medical Department of the City of New York are situated very near to the gate of Bellevue Hospital, and upon opposite sides of the street. The classes of these institutions are about equal in number, and contain numerous representatives from the west and south. The Bellevue school has an able faculty, being composed of men who have been prominent in American medicine for many years. Among the popular professors of this school are the Flints, Sayre, Van Buren, and Peaslee, whose text-books may be found upon the table of almost every practitioner in the country. The course of lectures delivered here upon Physiology, by Flint, jr., are very excellent, and are illustrated by skillfully performed vivisections, His lectures are delivered with much energy, and his teachings are up to the most advanced views of physiological science. The lectures of Prof. Sayre always secure a full attendance of students, as well as of the numerous practitioners who visit this city during the winter months. Prof. Sayre makes his lectures very practical, and in a very earnest manner illustrates his peculiar modes of treatment. During his visit to England during the past summer, he made numerous demonstrations of his method of treating Pott's disease by the plaster-of-Paris jacket, which was received with expressions of the highest approval by the profession of Great Britain. Through the courtesy of Prof. Sayre, your correspondent has had frequent opportunities of witnessing the wonderful results of this method of treatment, which is certainly a great advance in this department of surgery. A few days since, Prof. S. showed us a very polite note from Sir James Paget, expressing his approval and appreciation of this very successful method of treating this painful and destructive disease. The January number of the *Richmond and Louisville Medical Journal* will contain a succinct account of the method in which Prof. S. has discovered and brought to its present state of perfection this method of treating spinal caries.

The University school is now occupying its new building, which was erected about three years since, and its appointments are very complete. This school has been very popular, and particularly so during the past three years, its classes running up equal in number to the other two schools. The faculty is composed in

great part of men of activity and enthusiasm, and contains some very excellent teachers. Prof. Loomis is generally conceded to be one of the very best teachers on this continent, and his lectures are systematic and instructive. An incident illustrating the familiar assertion that "doctors will differ," occurred at the University a few days since, which was quite amusing at the time, and is recalled to mind in this connection. Prof. Loomis delivered a very instructive lecture upon Diphtheria, in the course of which he impressed with much force upon his hearers that such stimulating means as strychnia and electricity should never be used for the paralysis which occurs in connection with this disease.

After the lecture was completed, Prof. L. retired from the room, and was succeeded in a few minutes by Prof. Wm. A. Hammond. Some member of the class handed Prof. H. a slip of paper, which he read as follows: "What is the best method of treatment for the paralysis of diphtheria?" He answered promptly, "strychnia internally and the regular use of galvanism."

In addition to the regular instruction of the schools, there are several private courses of instruction upon special branches of medical and surgical science given by gentlemen skilled in these departments, who are not connected with either of the schools. One of the most popular of these courses is that upon ophthalmology, given at the N. Y. Ophthalmic and Aural Institute, by Dr. H. Knapp and his assistants. This class is composed for the most part of young practitioners who propose devoting themselves to this branch of surgery as specialists. Dr. C. Heizmann, formerly of Vienna, gives instruction in practical microscopy and histology, which is very popular with young practitioners. Dr. Heizmann is an enthusiast in his favorite field of study, and furnishes a fine course of instruction in this interesting and important department of medicine. Another special course which is very eagerly sought by practitioners, is that which is given by Dr. Paul F. Munde upon gynæcology. The class is limited to one student; the course continues one month, and consists in practical instruction at the hospital with which Dr. Munde is connected. Dr. L. Duncan Bulkley, whose attainments in dermatology are familiar to American physicians, gives a very excellent course upon this branch of medicine. The lectures are de-

livered at the Demilt Dispensary, where he avails himself of abundant opportunities for illustrating the course with every variety of cutaneous disease.

After having spent several weeks here in visiting the schools and the hospitals, we feel disposed to congratulate the students of New Orleans upon their superior advantages. No institution of this city has a faculty composed of more able and fluent lecturers than that of the University of Louisiana; and there are very few medical instructors in this city who give the student such careful attention, or devote to him so much time, as do the professors of the University of Louisiana. In the opportunities furnished the student for familiarizing himself with disease and injury, for acquiring that knowledge which will be most practical and thorough in practice, the students of New Orleans are peculiarly fortunate.

It would make this hasty communication quite imperfect to neglect an allusion to the very superior medical societies of this city. The profession owns a splendid brown stone building in the most desirable locality, which is occupied by the societies. The house is handsomely furnished, and is adorned by many fine portraits and engravings, which have been donated by fellows of the Academy and members of the societies. The second and third floors are devoted to the library of the Academy, and is open to the profession at all times. The meetings of the following societies are held here: the Academy of Medicine, the medical, surgical, and other societies of the Academy; the Pathological Society, the Obstetrical Society, the Medical Journal Association, and the Medical Society of the County of New York.

It was our pleasure to attend the anniversary meeting of the Academy, which was very largely attended. The annual oration was delivered by Dr. T. G. Thomas, upon the "Influences which are elevating medicine to the position of a Science," and was a very scholarly and thoughtful paper. Many gentlemen who have long been familiar to your readers were to be seen in the room. Among others were Drs. Fordyce Barker, Frank H. Hamilton, E. R. Peaslee, Alfred C. Post, and Nathan Bozeman.

One of the problems connected with medical education which has been gradually coming before the profession for some years, is apparently pressing hard for solution in this city at this time. It is the question of the admission of women to the profession.

At a lecture at Bellevue Hospital a few days since, we observed nine women sitting in the amphitheatre. One of the number made herself conspicuous by fainting during the progress of an operation by Dr. Hamilton. These women are to be found at all the hospitals where they are admitted, pressing their way among the students to see whatever may be of interest. They have not obtained admission to either of the three schools, but are admitted to most of the hospitals.

With much respect, I am

Yours, etc.,

ALUMNUS OF THE UNIVERSITY OF LA.

REVIEWS AND BOOK NOTICES.

Lectures on Practical Surgery. By H. H. Toland, M.D, Professor of the Principles and Practice of Surgery and Clinical Surgery in the Medical Department of the University of California. Lindsay & Blakiston, Philadelphia. 1877.

This book is the offspring of an injudicious request on the part of an admiring but ill-informed class of medical students. It is a stenographic report of the author's oral lectures to his class, and the most remarkable production of its kind in modern surgery. As it contains many dogmatic assertions startling and new to the profession, we will let it speak, through a few extracts, for itself. "When an ulcer resists all treatment, it is called a cancer." "When bone is diseased and not necrosed, it is called caries." Under the head of resection for morbus coxarius, he descants thus: "Resections of the hip-joint present no difficulty in the execution. I have performed the operation myself three times, but have not been satisfied with the result, and I do not think that I could under ordinary circumstances be induced to repeat it. In children the limb may be saved; but it is attached to the pelvis by the muscles, and is nothing but a dangling mass of bones and flesh, which is an incumbrance of the most serious character. * * * Amputation is much better than resection."

Again, in his concluding remarks on tracheotomy and laryngotomy, he gives this sound professional advice, couched in words

truly child-like and bland, to his audience, presumably students: "In conclusion, allow me to advise you never to perform tracheotomy or laryngotomy, unless the responsible party is able to pay the bill. The man on whom I operated, on Sacramento street, sold his property, did not pay me one cent; yet I hope he is as comfortable as any man who has a hole in his trachea can be, when he knows that the man who saved his life did not receive one cent either for the operation or the subsequent attention."

Speaking of a ready means of distinguishing the difference between mucus and semen, he says: "I can generally distinguish between them by the fact that semen adheres to the fingers when touched." It has always been the standard opinion heretofore, we believe, that the semen floats and wiggles in a nodus of mucus received from the mucus passages over which it passes; then, where the tactile distinction?

He advises the postponement of the operation for hare-lip till the fifth or sixth month, unless the deformity be so great as to interfere with nutrition. The best authorities on our shelf recommend early operation, provided the condition of the subject will permit.

Chlorate of potassa, ℥ss to the quart of water is, after an extensive experience with one case, highly extolled as a local application to senile gangrene. This does not accord with our experience, which, without any desire to boast, we must submit extends much higher up in the numbers. Carbolic acid is, par excellence, the application for all foul affections, and we are surprised that our author did not try it in his case.

Iodide of potash is recommended as an important auxiliary in the treatment of urethral stricture.

There are many other "good" things in this work, but want of space forbids our giving them.

Our author's sins of omission are on a par with those of commission. No allusion is made to Esmarch's bandage and bloodless operations, to Lister's antiseptic treatment of wounds, animal ligatures and sutures, plaster of Paris and liquid glass bandages in fractures, the plaster of Paris jacket in disease of the spinal vertebra, and the aspirator in retention of urine. In fact, notwithstanding the work is issued in the latter months of 1877, it contains no allusion to any of those great improvements which have within the last few years given a new impetus to

surgery. We fear our author has undertaken more than is warranted by his original research or personal experience.

Hospitals: their History, Organization, and Construction. Boylston Prize Essay of Harvard University for 1876. By W. Gill Wylie, M.D. D. Appleton & Co., New York; Geo. Ellis & Bros., New Orleans.

This is the successful competing Boylston Prize Essay of Harvard University for 1876, on civil hospital construction (not of lunatic asylums); location, materials, arrangements, warming, ventilation, drainage, lighting, with designs. The first chapter is devoted to a general consideration of the history of the origin and development of hospitals, and their progress during the century of the American Republic. Following is a brief résumé of the relation of hospitals to pauperism. These very interesting chapters constitute a general introductory to the more important subject of hospital organization, management and construction. It is well illustrated by a number of diagrams. While it is not a work which will be read by every practitioner, not being in their line, it is invaluable to those engaged in hospital duties, or in the construction of hospitals, as a work of reference. The whole subject matter is well digested, and reflects credit upon the author.

There is an appendix, consisting of a review of "*Two Essays relating to the Construction, Organization, and Management of Hospitals, contributed by their Authors, for the Use of the Johns Hopkins Hospital of Baltimore.*"

Modern Medical Therapeutics; a Compendium of Recent Formulæ and Specific Therapeutical Directions, from the Practice of Eminent Contemporary Physicians, American and Foreign. By George H. Napheys, A.M., M.D., etc. Fifth Edition. Enlarged and Revised. 1 vol. 8vo., 600 pages. Price, postpaid, cloth, $4 00; full leather, $5 00. D. G. Boniton, 115 South Seventh street, Philadelphia.

The active demand which in less than a year has exhausted the fourth edition of the present work, testifies in the strongest terms to the real and great value it has to the practitioner of

medicine. Its character can best be described in the words of the author. It "differs from ordinary works on the practice of medicine, in being devoted *exclusively* to Practice; from works on Materia Medica, in treating only of Therapeutics; and from a Formulary, in that it is not a mere collection of prescriptions, but aims at a systematic analysis of all current and applied means of combating disease." In the body of the book the diseases are arranged in alphabetical order under the general nosological division to which they belong. The treatment of each is first stated as given by different eminent practitioners, then by various hospitals, after which follows a résumé of the more important remedies employed in its management. An asterisk (*) designates those especially commended.

In pursuing this plan, all the diseases which a medical practitioner is likely to meet are described. In reference to treatment, over 700 authors are quoted, nearly all living and eminent, and 1346 formulæ given—not effete or hackneyed ones, but those in actual use by the most distinguished masters of the healing art.

The convenience and practical value of the book are greatly enhanced by *three* elaborate indexes.

1. An Index to Authors.
2. An Index of Remedies and Remedial Measures.
3. An Index of Diseases.

These cover 18 double-column closely set pages.

Outlines of Modern Chemistry, Organic; based in part upon Riche's Manual de Chemie. By C. Gilbert Wheeler, Professor of Chemistry in the University of Chicago, etc.

The object of this concise and valuable manual of organic chemistry is to present to the American student a concise outline of this important branch of knowledge, which is so intimately associated with the science and practice of medicine. In addition to the organic portion of Riche's Manual de Chemie, a translation of which by the author has served in part as a basis for these Outlines, the works of Miller, Fownes, Williamson, Roscoe, and others, have been freely used, while the chemical journals of Europe and America, including the latest numbers, have been consulted and the data which they afford utilized. For the

benefit of any who may care to read the full original papers from which are taken the abridged excerpta of recent articles, there are given references, with parentheses, to a list of authorities to be found in the author's work on Medical Chemistry.

The work is printed with clear type upon excellent paper, by Jansen McClurg & Co., of Chicago.

Forensic Medicine and Toxicology. By W. B. Woodman, M.D., F.R.C.P., Assistant Physician to the London Hospital, etc., and Charles M. Tidy, M.D., F.R.C.P., Professor of Chemistry and Medical Jurisprudence and Public Health at the London Hospital, etc. With eight full-page lithographic plates and one hundred and fifteen other illustrations. 8vo., pp. 1083. Philadelphia: Lindsay & Blakiston. 1877. Price $7 50.

This work, fresh from the hands of the publishers, merits more attention than a passing notice. The book is the result of great labor and care, and offers to the profession a perfect storehouse of legal medical knowledge. Simplicity, terseness, and method mark the production. That portion of the work relating to chemical and vegetable poisoning is exceedingly valuable, and the lithographic plates illustrating the post mortem appearance of the stomach after poisoning by irritating substances, are works of art. The plate illustrating spectra of blood is beautifully executed, and the article relating to the microscopy of the blood is of exceeding importance, and is written in an instructive and pleasing manner.

Comparing this work with others on the same subject, we recommend it for completeness, freshness, conciseness and cheapness, and feel certain that it will be very popular with both the legal and medical professions.

Modern Surgical Therapeutics: a Compendium of Current Formulæ, Approved Dressings, and Specific Methods for the Treatment of Surgical Diseases and Injuries. By Geo. H. Napleys, A.M., M.D., etc. Revised and brought down to the most recent date. Price, mailed postpaid to any address, cloth, $4 00; full leather, $5 00. Published and for sale by D. G. Brinton, 115 South Seventh street, Philadelphia.

The work before us merits the attention of the profession. It

supplies a want long felt, and surgical literature is not complete without it. The whole subject of surgical therapeutics is taken up, carefully handled, admirably condensed, and at the same time is explicit.

One novel feature of this work is, that a surgeon can familiarize himself at a glance with the treatment adopted by members of the profession whose success and skill merit followers. As a work of reference it has been admirably indexed, containing, as it does,

1. An Index of Authors.
2. An Index of Remedies and Remedial Measures.
3. An Index of Diseases and Injuries.

We have studied the book carefully, and are surprised at the amount of information condensed within its pages. While some portions of the book could be omitted, we have looked in vain for anything in surgical therapeutics, really proved, that has been overlooked. The outline of treatment is not only given, but the complete formulæ used by surgeons is generally inserted. The work is cordially recommended to the profession.

EDITORIAL.

State Medical Association.

The Editors of this JOURNAL are not desirous of any promotion, or higher position in this association, or in the convention which assembles for its construction, than that of humble but earnest co-workers for the general good. We have, however, thought it a duty growing out of our positions as Editors of the only medical periodical in the State, to offer certain suggestions designed to call the attention of those who are to make up the convention to some matters, which we believe to be of such vital importance to success, that adequate deliberation should be given them previous to the meeting. The subjects referred to are, first, PLAN OF ORGANIZATION. This should be practical and simple. It is to be hoped that those members of the convention who have given this subject the closest thought, will allow their names to go to the chairman, in order that his part of the work shall be wisely and quickly accomplished.

While not presuming to offer very much advice, where it may

be that little or none is required, we yet venture to suggest two points relating to organization. These are, first, that the construction of the constitution and by-laws shall be in conformity with the rules, usages and amenities of the American Medical Association. This is simply to place the society on the same plane and footing with similar associations throughout the United States.

The next item volunteered as a suggestion is, that the president be furnished by the country parishes. The movement begins in the country parishes: they merit the chief honor, and their city brethren will unquestionably cheerfully acquiesce in according it to them

The second subject of great importance to be considered, is the PRACTICAL WORKING OF THE ASSOCIATION WHEN ORGANIZED. This subject demands the most serious thought. If it is considered wisest to follow the common method of appointing committees to report upon given subjects, let these committees be selected with unusual care. Let us have no man chosen as an exemplar of the working bees of our hive, who will not return in his appointed time laden with profitable stores. Let us have the papers in our first volume of transactions of so high a standard, that inferior grades will not be likely to follow in a very short space of time.

It is a question to be considered, whether it will not be profitable to appoint a committee of one in each parish of the State to report upon questions relating to health and vital statistics in his parish. It should also be considered, whether it may not be wise to offer a prize, or prizes, for original valuable observations or discoveries connected with our science.

THE CONNECTION OF A STATE MEDICAL SOCIETY WITH STATE MEDICINE is too obvious to require prolonged discussion. Medicine strives to subserve the great object of conserving public health. To achieve this, it must be heard in the legislative bodies who make, or unmake the laws by which the State is governed. Otherwise these laws are not framed to meet the exigencies which call for their enactment. But even after the passage of such laws, they are occasionally rendered unproductive of good, because the appointing power is unwisely exercised. It is hard to say how this is to be avoided, but it is very unlikely that any Executive would violently oppose the combined medical profession of the State, if he had the welfare of the State close at

heart, which, with him, would in all probability be held precisely synonymous with his own welfare. It is not possible to formulate the various questions which, sooner or later, may come up in connection with State medicine. One of very great importance is the establishment of a State Board of Health, whose jurisdiction shall include the whole State. Another question relates to the enactment of laws to record and collate births, marriages and deaths throughout the State. These facts are absolutely essential to the competent working of any general sanitary laws. The one great impediment to the proper adjustment and proper working of sanitary laws, consists in the fact that if the usual machinery for putting State laws in force is employed, the laws are badly executed. If, on the contrary, they are entrusted to medical men to be carried into effect, they have neither official power to enforce obedience, nor any provision to compensate for their loss of time and investment of brain and muscle.

These points should be gravely considered, in order to develop some plan by which this dissociation of State authorities and the most self-sacrificing of the learned professions shall be overcome.

In conclusion, we trust that the 14th of the present month will become an illustrious epoch in the medical history of Louisiana.

We Wish You a Happy New Year.

This is the trite form in which the compliments of this season are usually put. But when it comes from one physician to another, it has a deeper meaning than the ordinary "first of January" verbiage. The calling of a practitioner of medicine is sublimely epic. His professional ministrations bring him into almost daily communion with his fellow-beings, on the occasion of one or the other of the most important epochs of human life—its earthly beginning, and its earthly ending. His happiness is therefore so interwoven with that of those of his fellows who are under his care, that wishing him a "Happy New Year" is equivalent to wishing him success in the noble mission which occupies him. With a full sense of the import of our words, we wish our friends and readers a Happy--most happy New Year.

Medical Jeremy Diddlers.

First, those who practice on medical journals. Our JOURNAL is a voluminous one, and both paper and compositors' work are high in this city. It is therefore neither a matter of policy, nor of any duty known to us as such, to furnish a gratis copy of our JOURNAL to every person who sends for it, whether the motive be honorable or dishonorable. In this dilemma, we concluded to test the spirit of the applicants by addressing to each one a postal card, stating the price of single copies of our issues. The following correspondence will show the animus of a person of confessed predatory habits, upon being balked in the midst of his nice little game.

NO. 130 THIRD STREET, MILWAUKIE, WIS.,
October 17, 1877.

New Orleans Medical and Surgical Journal:

Gents—Please send me a sample copy of your "Journal," as I wish to compare it with others before subscribing for any.

Please forward at your earliest convenience, and oblige,

Yours very truly,

O. H. CURTIS.

MILWAUKIE, WIS., Dec. 18, 1877.

Editors—Very much obliged for your *kind* offer for forty cents, but I can get all the medical works *I want* as much *better* than *yours*, which I chanced to have run across here, as can be *well imagined*, and all for *nothing, too*, with the compliments of the publishers, and they are glad to send them, too, and lose nothing by it either. I should have had my opinion, even if I had not seen it, of the paper which was not *worth* the sending of a *sample copy*, and also of the publishers who were *too poor* to spare one. Hoping to fill you with subscriptions,

I am yours,

O. H. C.

Medical periodical would do well to pass around from one to another the names of all who attempt to engage in such nefarious transactions.

Persons who have so far lost self-regard as to blazon their own

bad intentions on postal cards, should have some powerful corrective applied to them.

Medical Jeremy Diddlers of the second order.—Those persons who to save expense, go to cheap schools and get diplomas, or send and buy the same without the trouble of personal visits, and then go to first-class schools, and expect to spend the whole lecture season getting their tuition free, and appropriating the labors of others without so much as a formal vote of thanks. Their names should be passed around amongst first-class colleges, since they generally pass themselves around as soon as the janitor makes a pointed call upon them for a show of tickets.

Justice to Dr. C. G. Polk.

We publish the following letter in reparation for any injustice done to Dr. Polk in our last issue, in our reference to his business relations. It appears to us that Messrs. Richardson & Co. should have observed more circumspection in their letter to us. Still, they, as well as ourselves, seem altogether willing to rectify any unintentional wrong done to this gentleman. In answer to his request to do so, we will publish in the February issue any short and satisfactory testimonials exhibiting his good standing in the profession. In the meantime, he has met all pecuniary liabilities towards ourselves.

OFFICE RICHARDSON & CO, ST. LOUIS,
December 20th, 1777.

Drs. Bemiss, Watkins, and Pratt, N. O. Medical and Surgical Journal, New Orleans, La:

Dear Sirs—Yours of the 19th at hand and duly noted. C. G. Polk, M. D., August 21st, 1877, offered us the agency of the Glycerite of Kephaline, and we accepted, as per our letter of the 25th August, and since which time we have not heard from Dr. Polk, although we have written him for a supply. The doctor solicited us to take hold of his goods, and comes *well recommended* to us, but has failed to supply us his goods. We have written him again, and hope this time to get an answer to our letter.

Yours Truly,

RICHARDSON & CO.

METEOROLOGICAL AND MORTALITY REPORTS.

Meteorological Report for New Orleans—November.

Day of Month.	Temperature.			Mean Barometer Daily.	Relative Humidity—Daily.	Rain fall—inches
	Maximum.	Minimum.	Range.			
1	78	64	14	28.819	86.00	.00
2	75	58	15	30.105	54.00	.91
3	59	53	6	30.236	51.00	.00
4	78	62	16	30.087	78.00	.03
5	77	69	8	30.082	85.00	.22
6	76	67	9	30.221	69.00	.00
7	72	67	5	29.923	87 00	.00
8	78	64	14	29 971	63.00	2.30
9	75	58	17	30.270	57.00	.00
10	59	53	6	30 429	59.00	.00
11	62	40	22	30.388	52 00	.00
12	52	37	15	30 295	72 00	.00
13	60	34	26	30.191	76.00	.00
14	58	40	18	30.179	80.00	.00
15	64	42	22	30.192	62.00	.00
16	66	46	20	30.173	62 00	.00
17	61	45	16	30.159	80.00	.00
18	71	45	28	30.320	82.00	.00
19	69	49	20	30.280	90.00	2.10
20	70	62	8	30.240	76.00	1.96
21	67	56	11	30.240	72.00	.00
22	65	57	8	30.200	68.00	.00
23	64	56	8	30.120	62.00	.00
24	65	49	16	30.020	67.00	.00
25	63	50	13	29.800	55.00	.00
26	65	48	17	29.816	53.00	.00
27	60	52	8	30.013	54.00	.06
28	59	48	11	31.155	32 00	.00
29	48	40	8	30.329	30.00	.00
30	46	38	8	30.376	44.00	.00
Mean..	65.4	44.9	13.7	30.154	65.3	Total. 7.58

Mortality in New Orleans from November 26th, 1877, to December 23d, 1877, inclusive.

Week Ending	Yellow Fever	Malarial Fevers.	Consumption.	Small-Pox,	Pneumonia.	Total Mortality.
Dec. 2.....	0	3	20	0	6	102
Dec. 9.....	0	2	19	2	10	107
Dec. 16.....	0	4	13	0	6	122
Dec. 23.....	0	5	25	6	6	100
Totals.....	0	14	77	8	28	431

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ORIGINAL COMMUNICATIONS.

MALARIAL HÆMATURIA: NATURAL HISTORY AND TREATMENT, ILLUSTRATED BY CASES.

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Preliminary Observations.

In that form of malarial fever characterized by complete jaundice, nausea, incessant vomiting of green biliary matters, and hæmorrhages from the kidneys, which has received various names, at different times, and in several countries, and which is no new disease even in the Southern States, the hæmorrhage from the kidneys is preceded by congestion of these organs, and is attended with desquamation of the excretory cells and casts of the tubuli uriniferi.

Malarial hæmaturia (hæmogastric malarial fever), as a general rule, occurs only in those who have suffered from repeated attacks of intermittent fever, or who have been exhausted by prolonged attacks of remittent fever; and whilst some of the symptoms, as the nausea, incessant vomiting (and in some cases black vomit), and deep jaundice, and impeded capillary circula-

tion, resemble those of yellow fever, yet there are marked differences between the two diseases.

The presence of the albumen in the urine of *malarial hæmaturia* is attended also with colored blood corpuscles, excretory cells of the kidneys, and casts of the tubuli uriniferi, impacted oftentimes with colored blood globules. I have even detected portions of the lining membrane of the malpighian capsules containing colored corpuscles, and deeply stained by the coloring matter of the blood.

As a general rule, in severe cases of yellow fever the tubuli uriniferi in the kidneys themselves, after death, and the casts in the urine excreted during the second stage of the disease, are loaded with yellow granular albuminoid and fibrinoid matters.

I select the following cases from those which I have observed at various times, and the effort has been made, by chemical and microscopical examination of the blood and urine, to establish the true nature and relations of this dangerous form of disease.

Case I.—Malarial Hæmaturia, Illustrating the Constitution of the Blood and Urine, the Variations of Temperature, Pulse and Respiration, and the Effects of Treatment in this Disease.

I. E. E., age 21; fair complexion, light hair, blue eyes; 5 feet 10 inches in height; weight 143 lbs; native of Alabama; entered Charity Hospital (ward 31, bed 466) November 29th, 1876.

Has resided in low, swampy and marshy, unhealthy districts, and has repeatedly suffered from attacks of malarial paroxysmal fever.

During the months of June, July, August, September, October and November, suffered with paroxysmal fever, and in July and August suffered with jaundice.

Having determined to emigrate to Texas, he arrived in New Orleans on the 27th of November, 1876, but was compelled by sickness to discontinue his journey. On the 28th was seized with a "*congestive chill*," which lasted two hours, and was followed by intense jaundice and high fever. The entire surface of the body and extremities assumed a deep yellow color during the night of the 28th. Admitted to the Charity Hospital of New Orleans November 29th, 1876, 4 o'clock p. m.

At the time of his admission the patient presented the following symptoms: intense jaundice (the entire surface of the face and body as yellow as gold); pulse rapid, 144 per minute; respiration 30; temperature of axilla 102.5°; nausea, vomiting of green fluid; restless.

November 30th, 9 a. m. Pulse 132; respiration 16; temperature of axilla 98° F. Vomits large quantities of dark green biliary fluid. Has passed no urine since entering the hospital. Jaundice intense, even the saliva is of a golden color. Appearance of anæmia; lips, tongue, gums and hands pale and bloodless. Dullness upon percussion on the right side, from the sixth rib downwards, for two inches below the border of the false ribs. Great tenderness upon pressure in the epigastric and hypochondriac regions. Pressure over the region of the stomach and liver causes the patient to shriek and cry out. Flatness upon percussion over the region of the spleen, and the area of dullness due to the enlargement and induration of this organ, extends in the left hypochondriac region from the border of the false ribs six inches, and laterally four inches and a half. The enlarged and indurated spleen may be readily grasped with the hands, pressed firmly against the abdominal walls. Palpation and percussion also reveal the outlines of the congested, enlarged and tender liver. The enlarged spleen encroaches about one and a half inches upon the umbilical, and 3½ inches on the left lumbar region.

Administered eight grains of calomel and ten grains of sulphate of quinia by the mouth; also threw up the rectum ten grains of quinine in two ounces of water; applied sinapisms over epigastrium, also over region of kidneys. Ordered 10 grains of sulphate of quinia every 3 hours, until 30 grains are administered in addition to the first dose; as a drink, iced water charged with carbonic acid gas; diet, beef tea and milk and lime water—one part of lime water to three parts of milk.

7 o'clock p. m. Pulse 134; respiration 22; temperature of axilla 99.5° F. The kidneys have resumed their function, and the urine presents a deep brownish red color, and contains blood. The vomiting has ceased and the patient is quiet, although the pulse is very rapid and feeble.

December 1st, 8 a. m. Pulse 122; respiration 22; temperature 100° F. Jaundice continues; bowels have been moved. The

quinine was ordered to be continued in the proportion of 5 grains every 3 hours.

The tenderness in the hypochondriac and epigastric regions continuing, and the patient also complaining of great pain in the lumbar region, I determined to abstract blood, by means of cut cups. The blood flowed slowly and with difficulty, and rapidly coagulated, from the lumbar regions, over the region of the kidneys; but the flow of blood was sufficiently free from the epigastric and hypochondriac regions.

The cupping appeared to be productive of good, and the patient expressed great relief.

Chemical and Microscopical Examination of Blood of Malarial Hæmaturia.

Serum of blood of a deep golden-yellow color. When the blood was dropped on white bibulous paper, the central carmine spot containing the red corpuscles was surrounded by a deep orange-colored border. Chemical analysis revealed the presence in the serum of the blood, of the coloring matters and acids of the bile. The deep golden hue of the serum was caused by the bile pigment, which imparted the golden hue to the skin and conjunctiva. Coagulum firm; separation between clot and serum perfect. The clot floated in golden-colored serum. Under a magnifying power of 420 diameters, numerous dark granular masses and pigment cells were observed in the blood. Many of the colorless corpuscles contained numerous pigment particles.

1000 *Parts of Blood contained:*

Water	820.50
Solid matter, including fixed salts	179.50
Fixed saline constituents	7.18

1000 *Parts of Serum contained:*

Water	902.66
Solid matters, including fixed salts	97.34
Fixed saline constituents	5.77

1000 *Parts of Blood contained:*

Water	820.50
Dried blood corpuscles	86.47
Fibrin	4.50
Albumen and extractive matters	88.53
Fixed saline matters	7.18

The extractive matters of the serum contained UREA, and the coloring matters and acids of the bile, and were far more abundant than in normal blood.

The colored blood corpuscles were diminished, but not to the extent which I have often observed in the various forms of chronic intermittent (malarial poisoning) of long standing, attended with greenish yellow and dark bronze hue of the surface, and bloodless lips and tongue.

The moist colored blood corpuscles in this case were about 345,88 in the 1000 parts of blood, and the liquor sanguinis 654.12.

In healthy blood, the dried globules may vary in 1000 parts from 120.00 to 150.00; and the moist globules, from 480.00 to 600.00; and the liquor sanguinis, from 520.00 to 400.00.

It is evident, therefore, that in this case of malarial hæmaturia the blood contained relatively a much greater proportion of liquor sanguinis, and a less number of globules, than in health.

It is also worthy of note that the fibrin was increased, and reached 4.50 parts per 1000 of blood. The blood also coagulated firmly, and there was no appearance of the dissolution of the colored blood corpuscles in the serum. The formation of the dark pigmentary particles in the blood is not peculiar to malarial hæmaturia, and it is probable that a large proportion of these was derived from the changes of the blood in the liver and spleen.

The increment of the fibrin in the blood in this case, is of great interest, as indicating that an inflammatory condition of this fluid, as well as of the organs most deeply involved, namely, the kidneys, exist.

Such results overthrow entirely the view, that malarial hæmaturia is the result of the sudden action of some potent agent upon the blood corpuscles, which causes their dissolution, and the escape of the hæmatin through the excretory structures of the kidneys.

The establishment of the fact, that malarial hæmaturia is often if not invariably attended by an inflammatory condition, or hyperfibrinated state of the liquor sanguinis, and structural alterations and inflammation of certain portions of the kidneys, will lead to new views as to the proper method of treatment, and will go far to sustain the practice of those physicians who employ local depletion and mercury in small and continuous doses, in this disease.

Chemical and Microscopical Examination of Urine of Malarial Hæmaturia.

Amount of urine passed during 24 hours, November 30th, 9 a. m., to December 1st, 9 a. m., 1876, cubic centimetres 1560. Up to this observation, commencing November 30th, 9 a. m., the urinary excretion had been almost entirely suspended, and the patient states that during the preceding chill and fever he had passed little or no urine.

Heavy deposit of casts of urinary tubes, excretory cells of kidney, blood corpuscles, and urate of ammonia and soda, giving the urine a muddy, brownish red color. This deposit settled very slowly, and the clear urine then presented a deep brown and greenish black color. The deposit contained blood, and stained bibulous paper of a red and yellow color; and small coagula of blood were also visible. Chemical analysis revealed the presence of the coloring matter and acids of the bile.

Under the microscope, the casts of the tubuli uriniferi were stained of a deep orange yellow and reddish brown color, from the presence of the coloring matters of the blood and bile. Many of the urinary casts consisted in large measure of coagulated blood, fibrin, and colored corpuscles.

Reaction of urine acid.

Specific gravity of urine 1014.

1560 *c.c. of Urine passed during* 24 *hours contained:*

Urea	Grains,	528.52
Uric acid	"	18.72
Phosphoric acid	"	120.12
Sulphuric acid	"	51.38
Chloride of sodium	"	24.02
Blood, casts, and albumen		present.
Bile		present.

As the patient was in a state of starvation, taking little or no fluid or solid nourishment, we observe a great increase of the urea, uric acid, and especially of the phosphoric acid.

7 o'clock p. m. Pulse 110; respiration 21; temperature 100°.

December 2d, 8 a. m. Intense jaundice. Pulse 80; respiration 20; temperature of axilla 99°.

Urine abundant, reddish orange, with heavy deposits of highly colored casts of urates. Bile and bile pigment present. Amount of blood and albumen less. Reaction acid. Sp. gr. 1015.

1520 *c.c. of Urine passed during* 24 *hours (Dec.* 1*st*, 9 *a. m., to Dec.* 2*d.*, 9 *a. m.) contained:*

Urea	Grains,	585.20
Uric acid	"	18.24
Phosphoric acid	"	87.78
Sulphuric acid	"	25.93
Chloride of sodium	"	23.24
Blood and albumen		present.
Bile pigment and acids		present.

7 o'clock p. m. Pulse 74; respiration 19; temperature 100°.

December 3d, 8 o'clock a. m. Pulse 71; respiration 18; temperature of axilla 99.5°. Patient continues to improve slowly, although still deeply jaundiced and very weak. Urine deeply red; acid reaction; sp. gr. 1017. Heavy deposits of urates, casts and cells from the tubuli uriniferi. Deposits consist chiefly of the urates of soda and ammonia. The casts and blood globules have greatly diminished, and the albumen is present in small amount. Total amount of urine in 24 hours 1150 c.c.

Urine passed in 24 *hours, Dec.* 2*d*, 9 *a. m., to Dec.* 3*d*, 9 *a. m.*, 1150 *c.c., contained:*

Urea	Grains,	566.72
Uric acid	"	17.25
Phosphoric acid	"	44.57
Sulphuric acid	"	22.81
Chloride of sodium	"	26.56

Blood, casts and albumen, present in small amount.

Coloring matter and acids of bile present.

8 o'clock p. m. Pulse 72; respiration 18; temperature of axilla 98.5°.

December 4th, 8 a. m. Pulse 69; respiration 19; temperature 100.5° F. Patient continues to improve. The treatment has consisted chiefly in the administration during the day of 5 grains of sulphate of quinia every 3 hours, until from 15 to 20 grains were taken. One or two evacuations of the bowels have been secured each day, by means of small doses of extract of rhubarb and aloes. Urine deeply colored; acid reaction; sp. gr. 1018. Heavy deposit of urates, which disappear upon the application of heat; cast and urinary cells greatly diminished; albumen a mere trace; coloring matter and acids of bile present.

825 *c.c. of Urine passed during 24 hours, Dec. 3d, 9 a. m., to Dec. 4th, 9 a. m., contained:*

Urea	Grains,	444.67
Uric acid	"	6.60
Phosphoric acid	"	26.93
Sulphuric acid	"	17.54
Chloride of sodium	"	31.41
Albumen		trace.

7 o'clock p. m. Pulse 75; respiration 18; temperature 100° F.

December 5th, 8 a. m. Pulse 67; respiration 19; temperature 100.5°. Jaundice diminishing; red color of lips more apparent; patient much better, has some appetite. Urine dark blackish green color; sp. gr. 1018; acid reaction; heavy deposit of urates; albumen and blood corpuscles entirely disappeared; only a few light colored casts present; biliary coloring matter and acids present.

1220 *c.c. of Urine passed during 24 hours, Dec. 4th, 9 a. m , to Dec. 5th, 9 a. m., contained:*

Urea	Grains,	563.64
Uric acid	"	6.10
Phosphoric acid	"	32.97
Sulphuric acid	"	26.34
Chloride of sodium	"	27.18

7 o'clock p, m. Pulse 72; respiration 22; temperature 100.5°.

December 6th, 8 a. m. Pulse 67; respiration 19; temperature 99.25°. Patient continues to improve; complexion much clearer; yellow hue gradually fading; no albumen, nor blood, nor casts,

in urine; no deposit of urates; coloring matter and bile acids present. Urine of dark, blackish green color.

Patient sat up this morning for the first time, and was carried down in a chair, and was presented to the medical class during my clinical lecture in the amphitheatre of the Charity Hospital.

1140 *c c. of Urine passed during 24 hours, Dec. 5th, 9 a. m., to Dec. 6th, 9 a. m., contained:*

Urea	Grains,	474.01
Uric acid	"	3.32
Phosphoric acid	"	19.76
Chloride of sodium	"	96.55
Sulphuric acid	"	29.81

7 o'clock p. m. Pulse 72; respiration 22; temperature of axilla 100.25°.

Dec. 7th, 8 a. m.	Pulse	66;	respiration	19;	temperat'e	100°	F.
" 8th, 8 a. m.	"	108;	"	20;	"	100	
" " 7 p. m.	"	65;	"	20;	"	100	
" 9th, 8 a. m.	"	70;	"	19;	"	100	
" " 7 p. m.	"	79;	"	19,	"	100	
" 10th, 8 a. m.	"	127;	"	23;	"	100	
" " 7 p. m.	"	115;	"	20;	"	100	

We observe in this case that the pulse, which was 144, and the respiration 34 per minute, and the temperature 102.5 F., were reduced after the evacuation of the bowels and the free administration of the sulphate of quinia. From the 27th of November to the 8th of December, the pulse and respiration gradually descended to the normal standard, and the temperature of the trunk oscillated between 98° and 100.5° F. In the determination of the temperature, pulse and respiration, I was assisted by my student, Mr. C. A. Bourgeois. On the 8th and 9th of December the patient suffered from indigestion, attended with vertigo and accelerated pulse; and this derangement was consequent upon overloading the stomach. Under the continuous action of quinine and iron, and gentle purgatives, the patient continued to improve, the jaundice disappeared, and at the time of his discharge from the hospital he appeared to be fully restored to his usual health and strength.

Case II.—Malarial Hæmaturia Complicated with Pleuritis.

Mr. H.; light hair, fair complexion; well-built, active man. Has been much exposed to the malaria of the Mississippi Valley, during the building of levees. Was seized in the night of the 26th of May, 1877, at the residence of Judge ——, 267 Josephine street, with a severe chill which lasted about 4 hours. In the morning, May 27th, I found the patient of a deep golden color, and suffering with intense pain in the region of the right lung, which upon careful ausculation and percussion, was determined to be due to inflammation of the pleura. Ordered a blister 8 by 8 inches to be applied over the region of pain on the left side; also the following: ℞—Quinia sulph., grs. xxx.; hydrargyri subchloridi, grs. x.; extract aloes, extract rhei, aa grains x. Mix. Divide into 10 pills; two pills every two hours. Regarding the disease as malarial hæmaturia, complicated with pleuritis, I requested that the urinary excretion should be carefully preserved.

It is worthy of note that the partner of this gentleman, who had been engaged in the same labors and in the same localities on the banks of the Mississippi, Mr. G. P., had been seized with double pneumonia on the 18th of March, 1877, and died in New Orleans, after an illness of eight days. The disease was ushered in by a prolonged chill, and I found the patient jaundiced shortly after the supervention of the hot stage. Both lungs were involved; almost the whole of the middle and lower lobes of the right, and the lower lobe of the left lung. The pleura of the left lung, as well as the pericardium, were also involved, and the sufferings of the patient from this complication were of the severest character.

A remarkable feature of this case was, that the expectoration from the lungs, which was quite abundant, consisted of little else than *pure blood*. The efforts of the patient to breathe, and to dislodge the clots by coughing, during the last 24 hours of life, were of the most distressing character. I treated this case by means of quinine, Dover's powder, blisters and nutritious diet (milk punch and beef tea), at regular intervals, and also applied a blister over the left lung. The hæmorrhage of blood

from the lungs continued unabated up to the hour of death. This patient was also jaundiced.

It is therefore a matter worthy of careful consideration, that two active young men, both of them engaged in the same business and upon the same locality, namely, the construction of levees on the Mississippi river, should have been seizeed with chill followed by jaundice; and the one with pleuro-pneumonia and hæmorrhage from the lungs, and the other with pleuritis and hæmorrhage from the kidneys.

This observation, in like manner, sustains the view, that we may regard malarial hæmaturia as the supervention of an inflammatory disease on a fever.

Upon my return at the end of ten hours, I found that Mr. H. had passed a quantity of dark bloody urine, in which the clots of blood were clearly visible. The blister had drawn well, and the serum, which flowed from the surface in great abundance, was of a golden color. The serum from the blister had discolored the bed clothes and pillows, which looked as if yellow paint had been smeared on them.

The blister appeared to have exerted beneficial effects, in relieving the congestion of the left lung and pleura, and the complete dissipation of the pleuritic pain.

The bowels were freely moved, the quinine was continued, and the strength supported with beef tea.

On the 28th, the discharge of bloody urine presented similar microscopic characteristics to those of the preceding case of E., namely, highly colored blood casts of the tubuli uriniferi, detached golden colored cells from the tubuli uriniferi, granular matter and dark pigment particles. There has been, however, a marked improvement in the pulse, which was reduced from 140 per minute to 100, and the patient expresses himself as feeling stronger and better.

The blister continued to discharge large quantities of golden colored serum.

On the 29th, the urine was much clearer and lighter colored, and contained much less blood and only a comparatively small number of high colored casts.

During the past 48 hours, I had administered to the patient 90 grains of quinine in the form of pills, and in combination with small quantities of calomel, aloes and rhubarb.

The results of this treatment were of a satisfactory character,

and on the 31st the patient was able to sit up. By attention to the diet and to the condition of the bowels, and by the daily use of one or more doses of quinine, combined with iron and rhubarb, this gentleman was entirely restored, and when I saw him last, on the 19th of November, 1877, he was in the enjoyment of excellent health.

Case III.—Malarial Hæmaturia, Illustrating its Symptoms and Treatment.

Mr. M.; age 21; light complexion and red hair; native of New York; has been working in a low, malarious situation on the Mississippi river. Entered Charity Hospital November 1st, 1871, suffering with malarial intermittent, which appeared to yield readily to quinine, and the patient was discharged and again went to work on the banks of the Mississippi.

The chill and fever again returned, and the patient reëntered the Charity Hospital on the 26th of December. Had a chill at the time of entrance, and presented a pale, anæmic, sallow hue.

December 27th, 10 a. m. Clear of fever. 7 p. m., seized with a severe chill which lasted two hours, and was followed by fever of great intensity, which declined towards morning, and at 9 a. m. (December 28th, 1871), pulse 110, temperature of axilla 101° F.

During the cold stage last night, commenced passing bloody urine in considerable amount; (it was not possible to ascertain the exact amount, but the secretion was not apparently diminished.) The urine was of a deep blood color and bloody odor, and resembled to the eye liquid blood. Heat and nitric acid produced a heavy coagulum, which was very high colored, from the presence of the coloring matter of the blood. After the removal of the coagulable constituents of the blood, the presence of urea, uric acid, sulphuric acid, phosphoric acid, and chlorides, was determined by the appropriate methods.

The microscopical characters of the urine were similar to those of the cases just detailed, namely, bright colored casts of the tubuli uriniferi, containing colored blood corpuscles variously altered, and the granular fibroid constituents of the blood, deeply discolored by the coloring matters of the blood globules; detached cells from the excretory tubes of the kidneys, and yellow granular matter, and blood globules variously altered in shape. The

number of colored blood corpuscles appeared to be much less, however, than in an ordinary uncomplicated case of hæmaturia, dependent on traumatic lesion, and active hæmorrhage from the kidneys, or bladder; and I supposed that a large portion of the colored blood corpuscles, effused with the tubuli uriniferi, had simply parted with a large portion of the coloring matter, which was washed out by the urine.

This specimen of urine, which had stood for some time (about six hours), in an open vessel, during the night and morning of its passage, contained some sporules and delicate branching filamentous cells, of a fungous growth. The presence of these plants appeared to be due to the exposure of the urine in the ward, as they were not observed in specimens of urine collected subsequently in stoppered bottles. The following was ordered: ℞—Quiniæ sulph., ʒi.; acidi sulphurici aromatic gtt. x.; aquæ, fʒvi.; administer one-half at once, and the remainder in one hour and a half. Diet, beef tea and stimulants.

29th, morning. Quinine retained; patient restless—says that he passed a very restless night, and suffered with ringing in the ears and head; vomited during the night a greenish fluid, and complains of nausea at the present time. Sweated profusely during the night; features pallid and sunken; fingers wrinkled and shrivelled; pulse 140; temperature of axilla 104° F.; skin moist and relaxed; thirst extreme.

℞—Chloral hydrate, ʒiii.; syrupi cort. aurantii., fʒii.; aquæ, fʒiv.; mix; fʒ. p. every half hour until the patient is quiet. Continue nutritious food and alcoholic stimulants; apply sinapisms over epigastric region; continue acid drinks.

Patient still passing bloody urine; passed at one time fʒxii. of bloody urine; the color does not appear so deep, however, and the albumen and colored corpuscles have diminished in amount. Sp. gr. 1026; reaction acid; turbid when passed; upon standing, let fall a heavy brownish yellow flocculent deposit. Under the microscope, the deposit was found to consist of numerous cells from the urinary tubes, highly colored by the coloring matters of the blood and bile; also numerous casts of the tubuli uriniferi, filled with colored blood corpuscles and highly colored fibrinous matter.

4 o'clock p. m. Symptoms unchanged, except an inclination to sleep; stomach still very irritable; temperature of axilla 104°; pulse 140; skin hot but moist; urine red; great thirst.

30th, 9 o'clock a. m. Patient passed a very restless night; nausea continuous; skin hot but moist; thirst very great; pulse 150; respiration 30; temperature of axilla 104° F.; continues to pass bloody urine; complains of great pain in the region of the kidneys; urine of a much lighter color, and of a deep orange red, with heavy yellow deposit of excretory cells, and casts of the tubuli uriniferi. Urine also contains blood corpuscles. Sp. gr. 1022; reaction acid. The color of the morning urine is lighter than that passed during the night, and contains much less blood, and fewer excretory cells and urinary casts.

Forty-seven fluid ounces of urine have been passed in 24 hours, and heat and nitric acid produce only a slight coagulation in the last sample of urine passed this morning.

℞—Magnesiæ sulph., ℥i.; aquæ, f℥xvi.: make a solution, and administer a wineglassful every hour until the bowels are moved. ℞—Antimonii et pot., tart., grains ii.; morphiæ sulph., grs. ii.; aquæ, f℥viii; mix: tablespoonful every four hours until nausea is induced. ℞—Quiniæ sulph., grs. xx.; acidi sulph. aromat., q. s.; divide into 10 pills and administer at once. Continue nutritious diet and alcoholic stimulants.

4 o'clock p. m. Skin warm but moist; complains of distressing nausea; thirst very great; pulse 130; temperature of axilla 103°; has had two small evacuations.

31st, 10 o'clock a. m. Patient appears to be much improved; rested well during the night; still complains of nausea, but not to the extent of yesterday. The nausea prevented the administration of the tartar emetic solution. Bowels moved seven times during the past 24 hours. The nausea seemed to have been increased immediately after the administration of the solution of sulphate of magnesia. Skin moist, relaxed; complains of great pains in the lumbar regions. Pulse 110; respiration 20; temperature of axilla 100.5°. Has some appetite. Urine abundant, sp. g. 1019; reaction acid; light orange yellow, nearly normal color. Blood corpuscles, casts and cells of urinary tubes, still present, but in greatly diminished numbers. Albumen greatly diminished.

℞—Quinia sulph., grs. xx.; administer at once.

January 1st, 1872, 9 o'clock a. m. Patient greatly improved; pulse 97; temperature of axilla 99°; respiration 20; skin moist and relaxed; patient in a gentle perspiration; urine normal in color; no deposits. Under the microscope, only a few cells and

casts could be discovered. Mere trace of albumen. The patient was placed upon the following mixture: ℞—Ferri sesquichloridi tinct., f℥ss.; quiniæ sulph., ʒss.; aquæ, f℥xvi.: wineglassful three times a day.

A careful examination of the blood was made in the preceding case, and the colored globules were found to be greatly diminished; and this change in the blood was characteristic of all such cases which have come under my observation. I have observed other cases of malarial hæmaturia in which the changes of the urine were similar, and in which there was in like manner evident congestion of the kidneys, attended with desquamation of the excretory cells of the tubuli uriniferi, and active hæmorrhage.

In some of these cases, immense quantities of green biliary fluid were vomited, and the patient died in a state of hopeless collapse, with depression of temperature, and cold extremities, covered with a cold clammy sweat. As a general rule, suppression of the function of the kidneys is a fatal sign, and, as in yellow fever, may be attended with convulsions, delirium and coma.

The pathological changes which I have observed after death are characteristic of malarial paroxysmal fever: enlarged slate and bronzed-colored liver, with pigment granules; enlarged and softened, or indurated spleen, with altered globules and pigment granules; gall-bladder distended with thick, ropy bile, presenting, when seen *en masse*, a greenish black color, and in thin layers a deep yellow. As much as 1600 grains of bile, of high specific gravity, have been obtained from the gall-bladder in malarial hæmaturia; whilst in yellow fever, not more than 120 grains of bile are, as a general rule, contained in the relaxed gall-bladder; and in some cases of the disease, I have found the gall-bladder *containing only an albuminoid liquid coagulable by heat and nitric acid; and in other cases of yellow fever I have found the gall-bladder distended with dark liquid blood.*. When blood is found in the gall-bladder after death from yellow fever, its presence must be referred to the same causes which induce the black vomit from the stomach in this disease.

The bile of malarial hæmaturia is highly concentrated, and, as far as my experience extends, *never contains blood;* neither is the dark green *(black)* vomit of this disease blood or altered blood,

but it is an acrid secretion from the stomach, highly charged with bile.

Bile is universally present in the vomited matters of malarial hæmaturia. Bile is universally absent from the black vomit of yellow fever.

In the former disease the whole system, blood, stomach, intestinal canal, and organs generally, are deluged with bile; in yellow fever, the coloring matters and acids of the bile are found in the blood, but in the third stage of the disease, namely, that of calm and depression and black vomit, bile is absent throughout the gastro-intestinal canal.

The kidneys, after death from malarial hæmaturia, present a deep red purple congested hue, and their sections, examined under the microscope, exhibit the tubuli uriniferi filled with coagulated blood. In many specimens, I have been able to ascertain that the rupture of the capillaries occurred chiefly in the malpighian corpuscles, and have been able to trace the tubuli uriniferi through their whole extent, as brilliant opaque cylinders filled with coagulated blood.

The best demonstration which I have been able to give my students of the relationship of the excretory structures of the human kidney, have been derived from sections of the kidneys of malarial hæmaturia.

It is evident, therefore, that the issue in any case of malarial hæmaturia will largely depend upon the number of urinary tubes thus blocked up with coagulated blood.

In yellow fever, the tubuli uriniferi are blocked up with detached cells, yellow granular and oleaginous matters, but not with blood corpuscles.

Malarial hæmaturia and yellow fever, although possessing some symptoms in common, are distinct diseases, and require different modes of treatment.

As far as my experience extends, I have been led to rely in the treatment of malarial hæmaturia, chiefly upon such measures as,

1st. Prompt purgation, with such agents as calomel, extract of rhubarb and aloes.

2d. Counter irritation over the region of the kidneys.

3d. Cut-cups—the local abstraction of blood over the region of the kidneys by cut-cups.

4th. Quinine in full and sufficient doses to prevent the recurrence of the paroxysms. If rejected by the mouth, the quinine

must be administered by the rectum; and if both avenues are closed, in virtue of incessant purgation and vomiting, then it may be introduced by subcutaneous injection, or through blistered surfaces.

5th. Nutritious diet, in small quantities and at regular intervals, when retained by the stomach.

6th. The persistent use of calomel, rhubarb, aloes and colocynth, in small doses, combined with quinine, at regular intervals three or four times a day, during the continuance of the jaundice, if the bowels are torpid.

7th. After the establishment of convalescence, the continuous use of such tonics as the nitro muriatic acid, and tincture sesquichloride of iron, in combination with quinine; nutritious diet, generous wine: and change of climate to an elevated non-malarious region, if within the power of the patient.

495 St. Charles street, corner St. Andrew,
NEW ORLEANS, LA., Jan. 12th, 1878.

LISTER'S ANTISEPTIC TREATMENT OF WOUNDS, IN WARDS 3 AND 4½ OF THE CHARITY HOSPITAL OF NEW ORLEANS, DURING 1875, 1876, AND 1877.

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Continued from January No.

If I had to search for another excuse in extending this chapter further, I might recall to your mind that repetitio est mater studiorum.* Volkmann states, that during the 4½ last years he has treated, under the antiseptic method conservatively, 75 *complicated fractures* in 73 patients. A small number of these, only 8, had to be amputated secondarily; yet of all those, whether treated conservatively up to the end, or when the amputating knife had to be employed, *not a single one died.* Every one of them has been cured!

"Since I am not the inventor of the antiseptic method—the greatest progress surgery has made since its existence, you need not think it immodesty on my part," says Volkmann, "if I look upon such a result as very extraordinary; yes, compared with our former ex-

* This article was originally intended for my preliminary lectures to the class of 1877, of the Charity Hospital Medical College, but for the present time suspended.

periences, as quite unheard of. The mortality of these injuries, previous to the introduction of the antiseptic method, was under every kind of treatment considerably larger. The complicated fractures, or open fractures of bones, were considered, until a few years ago, as injuries endangering life. Acute septicæmia and pyæmia, in hospitals, carried off great numbers, and the losses of life were terribly large in German and French hospitals. Less fearful in England, the mortality was still a large one, and the characteristics of the situation there, were that in a single case not even the smallest guaranty could be given in regard to the exitus of the injury. Even the most practical and experienced surgeon could not prognosticate if he would be able to save the life of his patient or not, although no laceration of the soft integuments, no splintering of the bone had taken place, and not more than a small portion of the skin had been perforated temporarily, the reduction of the bone having been made soon afterwards. To show how great the mortality is in places where no Lister's treatment is in use, all trustworthy statistical compilations are wanting. Few surgeons have the moral courage to publish their losses like Prof. Nussbaum, in Munich. So Nussbaum has stated, that during the 16 years previous to the antiseptic treatment, he performed 64 amputations of the thigh, all dying but 7." Volkmann says, that after such an acknowledgement as Nussbaum has given, he shall not hesitate to declare that his results have not been much better.

Larger numbers, permitting an inquiry in regard to the mortality of compound fractures of bones in a non-antiseptic treatment, are found only in fractures caused by gun-shots. After Prof. Billroth's compilation of 2621 of such fractures of the thigh, although treated differently, 1129 died, and of 1699 of such injuries of the leg 401 died, which gives a mortality for the thigh of 60.8 per cent., and for the leg of 23.6 per cent. In these numbers were included primary amputations, which, not belonging to conservative treatment of fractures, ought not to be counted. In regard to these statistical tableaux it might be said, that the result would be quite different if the wounds obtained in battles had been excluded, because the mortality in war is always greater, and many here die, whose life in peace or at home might have been saved, not only on account of a better scientific nursing, but also on account of the non-appearance of secondary accidental wound diseases, which carry off a good many in the

war hospitals. Besides the newly-invented rifled guns used in the present wars, are also causing a greater destruction in the bones, and increasing thereby the mortality. "In the beginning of my career," says Volkmann, "when I first entered the war hospitals, and in 1866, in Trautenau, took charge of nearly 1000 patients suffering from shot wounds, amongst them 451 open wounds of the larger bones of the extremities, and from the 9th week observed the great mortality taking place, I *also* entertained the generally adopted idea of the greater mortality of the wounded in war, and it happened to me, what will happen to others, who for the first time practice surgery *en gros*, that the brutal power of absolute numbers commanded my opinions. No doubt came over me that the disfavor of inauspicious circumstances, and the special importance of shot injuries in war, should not also require the greatest sacrifices, till at a later time I compared these results, expressed in percentage, with those obtained in war hospitals. Of the complicated shot fractures of the thigh, I had lost in Trautenau about one-fourth part. My journal, containing such wounded who were treated at the surgical clinic in Halle, showed that of 11 such open fractures of the thigh I had lost 6, and of 64 such injuries of the leg, 26 had died. The difference of the last was considerably more unfavorable, compared with the losses in war. Most assuredly I expected the contrary, at least with the open shot fractures of the leg, amongst which were a great number of simple penetrating wounds. Even where a greater number of *complicated fractures* of the leg were collected, the same result was obtained; so of 885 such fractures collected from German and English hospitals, with and without amputation being performed, 339 had ended fatally, which gives a mortality of 38.5 per cent. for peace injuries, against an average mortality in war of 23.6 per cent. The results of civil hospitals therefore were 15 per cent. more unfavorable. Something unheard of in surgical practice is, the conformity of the mortality figures of different surgeons. In general we may accept, as near the truth, the figures 38.5 per cent. for the mortality of the compound fractures of the leg in peace, and may further accept, that the influence of the different non-antiseptic treatments in the various hospitals is to be considered very immaterial in regard to the general result.

The importance of a true statistic is obvious, for therewith the

fate of a method will be decided The principles which have guided us in compiling the statistical tableaux, have, I think, to be followed, if the statistics shall answer the question, What will be gained by the treatment of compound fractures, and mainly, what services a certain method has rendered?

In the construction of a statistical tableau of cases treated conservatively, the intermediate and secondary amputations have to be included and counted, if the statistics shall not be a fraud and a deceit, and if we do not desire to throw sand into the eyes of others and ourselves. We will never say, in treating an acute complicated fracture, that the extremity cannot be preserved, but that we intend to postpone the amputation 8 or 14 days; but the amputation will be performed later, because the respective case did not go the course which we in the beginning expected; either because in the first examination we undervalued the severity of the injury, or, which is more common, because accidental wound diseases, endangering the life of the patient, had set in, after we had initiated the conservative treatment.

The intermediate and secondary amputations are therefore nothing but cases of a miscarried conservative treatment. By eliminating them, or passing them over silently, we will do away with a great deal of our miscarriages, and just of intermediate and secondary amputations, the greatest number of which happen to die.

That none of my 8 intermediate or secondary amputations have died, though the thigh was represented 4 times, with one of the leg and three cases belonging to the upper extremity, will astonish any surgeon grown up in the traditions of the old school, and will cause greater wonder than the report, that of the 73 cases with compound fractures conservatively treated, not one has lost the life. Some failures occurring amongst the intermediate or secondary amputated, the conservative treatment having miscarried, will in postero be readily excused.

Since some authors continue nevertheless to report what they call pure conservatively treated cases of complicated fractures, I will give them, as an example, a calculation which, though imaginary, corresponds exactly with the former mortality conditions. Suppose somebody told us that, by a newly invented method of his, he had treated cases of complicated fractures, and that the mortality which he had to record amounted to only 20 per cent. Since of 60 cases conservatively treated, merely 12

had died, and if he suppresses hereby the fact, that he had had under treatment 90 cases of such injuries, on 30 of which intermediate or secondary amputations had been performed, and of these 30, 24 had died and only 6 had been saved—a proportion which formerly was not uncommon—then he gives his losses double as small as they in fact have been, because he has lost exactly 40 per cent. If, therefore, any surgeon shall make it a principle with him not to let any of his patients die without first being amputated, he could reduce in this manner the mortality of his conservatively treated cases to nought.

Whosoever, as I have done formerly, and still consider at this hour correct, takes hold of the amputating knife as soon as the patient begins to show symptoms of pyæmia or septicæmia, exactly follows up this principle.

Without mentioning that this extreme, followed up, will lead us into absurdities in the calculation, we have still to consider, that the views over time, necessity and admissibility of a secondary amputation in a complicated fracture, so far treated conservatively, differ considerably. The decision in a given case, if it be better to amputate or not to amputate, is frequently very difficult. Definite rules for our action do not exist. Every one decides according to his own conviction, guided by experience. In excluding the secondary amputated, the statistics will be loaded with an uncalculable factor, and be influenced in a high degree by the views and inclinations of every surgeon, and finally lose every prognostic value.

That all these expositions are equally applicable to the intermediate and secondary *resections* of *joints*, need not be specially mentioned.

But it is another question, if it be proper to enclose, in such a tableau as ours, patients with *primary resections* of *joints*. On the whole, I think the reception of primary cases desirable; that means of such only which are treated conditionally conservative, since it is not very rare, that at the first bandage we may perform operations, of which we do not know if we are entitled to count them amongst the resections of joints, or not, and because amongst such cases, where a loose piece of bone has been removed from the joint, or only a pointed splinter has been cut off, all transitions may happen up to the typical total resections.

The antiseptic treatment concedes to the partial and atypic resection a much larger field than was formerly the case, because

in the beginning of the treatment each joint, involved in a complicated fracture, has to be opened directly, in order to wash it out, to disinfect, and to drain it, and on the other hand, portions of a joint covered by cartilage, which is left behind, cause no noxious influence.

When the joint has once been opened, it must then be examined with the finger, and whilst the edges of the incisions are held back with strong sharp hooks, to render the epiphysis visible, any unfavorable fractures must be removed and adjusted with the bone forceps or saw. On the foot we need properly only remove the ends of the malleoli, in order to drain the joint well; another time we may remove one or both malleoli with a few strokes with the chisel, yet without touching any other part of the tibia; in a third case the talus, or only a part of it, may be extirpated.

Do these now constitute resections of joints or not? And how shall we subserve those operative proceedings? Similarly this may happen on the elbow-joint, or even on the knee-joint. On the elbow-joint we may, for instance, if only the lower epiphysis of the humerus has been injured, leave untouched the radius and ulna, and the insertion of the triceps, without having to fear long-lasting suppuration, or a loss of supination and pronation. But so far as the knee-joint is concerned, we will have to relinquish here forever the typic primary resection in traumatic cases. The conservative treatment, supported additionally by the antiseptic, will probably carry the case to a favorable end, where a resection is out of question; for example, in those frequent cleavings of the femoral condyles from shots in the lower third, near and above the knee, where, next to a number of small fragments, each condyle forms a larger section of them.

Since the joint has always to be opened sufficiently wide for the antiseptic treatment, and often on several places counter-openings have to be made for proper draining, we are not to omit to bring the relations of the bones in a more simple condition, by the primary removal of all splinters of the sharp ends of the fractures, or of the different crushed pieces of the shattered bones.

The mortality of amputations of the larger extremities, and the danger *per se* caused by the operation, have, under the antiseptic treatment, to be reduced to zero; and in order to decide the question, What may be attained by the antiseptic treatment in compound fractures, it cannot be of any consequence how many

or how few of the primary amputations have died. Notwithstanding that by the early removal of a limb, the fracture has been eliminated *ab initio*, and as such has ceased to exist, the injuries which come in question here do not deserve any more the name fractures of bones, and we may consider it an abuse to still count them amongst the latter. A postiori fit denominatio. The injuries of the bones, compared with those of the integuments, are here of minor consideration. The decision of the question, If we shall amputate primarily or not, depends upon the condition of the integuments, and not of the bones. If no great lesion of the integuments is present, nobody will urge an amputation, although the bones may be much crushed or splintered. The amputation will be executed in such cases where the soft integuments are lacerated, mangled, or torn in pieces to a great extent. In such a case, which is frequently caused by machines, or railroad accidents, it makes no difference even if the bones should have escaped injury.

If the character of an amputation would be altered, the bones being at the same time injured, is not known. War surgery, in speaking of fractures caused by shot, has anticipated these views for a long time, excluding with propriety those injuries of the extremities which were caused by artillery. The cases which we at present amputate in civil life, correspond with those injuries of the extremities caused by field artillery. In not considering them in statistics of fractures, we satisfy the first principle which statistics have to follow, in taking as a base for investigation things of a homogeneous character—things not only arbitrarily selected, but most homogeneous in themselves. Cases treated conservatively, have at least in common, that they cannot transgress a certain serious injury, s. c., where the fractures of bones, compared with the injuries of the integuments, cannot be considered other than a therapeutical or prognostical accident. A final point yet to be mentioned, and which belongs equally to the principles to be taken into consideration in getting up such statistical compilations, but which on the other hand will bring us back directly to our theme, consists in examining what has been accomplished in the treatment of compound fractures under the antiseptic method. During the 4½ years, says Volkmann, among 75 complicated fractures, I have not, strange as it may appear, lost a single case from another severe injury, for instance, a fracture of the skull, with which the patient was simultane-

ously afflicted; nor did I suffer any loss from delirium tremens, or an intercurrent internal disease, for example, tuberculosis of the lungs or hæmoptysis, or from fatty embolism. It might be said, therefore, that I had good luck. Very well. But are such cases of death in any way capable of changing our views, our judgment over the efficiency of the antiseptic treatment? Are such observations anything else but broken retorts, interrupted experiments, which have not been carried to a successful end, yet without our faults? Can we believe, that in medical casuistics every case be apt to answer every question? Common sense says that such is impossible. Nevertheless, some young authors have neglected the postulates of a simple logic, and have taken such deaths. instead of excluding, or separating them, into a statistic of small numbers.

Gentlemen—The views laid down here by Volkmann are of great importance, and they ought to remind you that upon proper statistics rests the fate of a method; that such statistics are the only means in our possession with which, if based upon large numbers, we will be able to decide the superiority of one method over another.

But let us now turn back to the 75 compound fractures, treated in 73 patients, under the antiseptic method, by Volkmann, and of which number, as stated, he did not lose a single case by death. Of this number, the injury was caused 48 times by a direct force; 20 times the bones were splintered at the seat of fracture. The largest number were of the most severe character, caused by machines, making it often difficult to decide, if the trial of a conservative treatment should be made.

Next to a number, where simultaneously the large joints of the body were opened, were several cases with the muscles lacerated down to the bones, and hanging out of the wounds in shreds, or the detached skin was hanging down from the knee to the malleoli.

Of the different injuries there were:

8	compound	fractures	of	the	humerus;
20	"	"	"	"	forearm;
1	"	"	"	"	thigh;
3	"	"	"	"	patella;
43	"	"	"	"	leg.

In toto, 75 in 73 patients.

Of secondary, or more correctly, intermediately amputated, there were:

2 of the humerus;
1 " forearm;
1 " leg;
4 " femur.

—

8 amputations in 75 fractures, *i. e.*, equal to 10.6 per cent.

With increasing experience in the manipulation of the antiseptic treatment, the secondary amputations became more scarce. Hæmorrhages and unexpected primary traumatic gangrene may, in some cases, necessitate the amputation even at a later period.

Resections were performed in toto, 7, viz.:

1 of the shoulder-joint;
4 " elbow-joint;
2 " ankle-joint.

Of these, 2 were primary and 5 secondary resections, or 6.6 per cent.

The larger joints had to be opened 21 times, or 28 per cent. of the whole number 75. Of these (10) cases, treated conservatively, not a single case of ankylosis happened, all 10 were healed with a free movable joint; an extraordinary happy result, for which surgery, previous to the antiseptic era, has no analogue. Very poor is the tabular statement on compound fractures of the thigh, which could have been treated conservatively. Most all injuries here were caused by machines or railroad accidents, some being in such a condition that primary amputation had to be performed. In the larger number, the limbs were already nearly torn off from the body. Yet our inadequate experiences were here replaced by 17 osteotomies, wedge-shaped excisions of the femur, performed during that space of time. In not a single one of these cases, treated antiseptically, was one or the other of the accidental wound diseases observed; no suppurative or phlegmonous processes happened. The wounds always healed without any inflammatory reaction, although there were 9 operations amongst them near the hip-joint, and 7 near the knee-joint, only one being in the middle of the diaphysis. The bones were denuded and exposed by incisions from 3 to 6 inches in length, the periosteum detached from the whole circumference of the bone, and larger or smaller wedge-shaped pieces chiselled out of the continuity of the bone. 16 of the 17 were cured without the

slightest interruption; one of the resected, a hæmophilius, died during the first 24 hours from a parenchymatous secondary hæmorrhage. Three, suffering from pseudo-arthrosis of the femur, were cured after severe resections had been performed. An important observation is, that under the antiseptic treatment old people suffer severe injuries and capital operations just as well as younger ones, provided that not much blood has been lost. What they do not put up with, but rather go through with difficulty, is not the operation or injury in itself, but the septic fever, which under the old method of treatment usually followed the operation. Far more important than the fact, that of the patients with compound fractures none died, is, that the course of the wound-healing process was an entirely different one from that commonly observed in compound fractures. With the exception of a few small penetrating fractures, or where healing took place under the formation of a scab, the common course, where the protection of the antiseptic treatment failed to be present, was, that a more or less severe putrefaction set in, which usually led to an acute progressive sepsis, to septicæmia and death, during the first 4–10 days, or that suppuration took place in the fracture and surrounding integuments, and lasting a long time. Repeatedly, deeply-seated depositories of pus occurred, with the formation of abscesses between the muscles, around the bones, or under the skin; splinters and the ends of the fractured bones became necrotic. From the end of the 3d until the 6th week, and even later, the injured ran the constant risk of becoming pyæmic. At a still later period, after the suppurating portions had become encapsuled, and were separated from the neighboring parts by granulating tissue and a sclerotic connective tissue, a condition of chronic fistulous suppuration commenced, which, although now not so dangerous, was nevertheless occasionally interrupted by retentions of pus and new invasions of pus into the neighborhood. A definite cure was in this manner not obtained previous to 5, 6, or 10 months; and if, during such a protracted healing, the knife had not been used for the incision of one or the other abscess, such was considered a relatively rare, accidental, or happy affair.

Let us now compare herewith, the course which our compound fractures ran under the antiseptic bandage, of which time we have to separate the first 10–12 months, during which we had become enabled gradually to learn the technical part of the

method, from those subsequent 3½ years. Although we did not lose a single patient during that first epoch, yet we did not succeed in hindering copious suppurations of the fractures, and several times we met with considerable necrosis of bones. Repeatedly, also, the skin became gangrenous in the circumference of the wound, though it did not appear at first to be injured. For both of these mishaps we have to accuse ourselves, and they seemed to have been caused or favored by the use, for the first disinfection, of a solution of the chloride of zinc, which, by means of a syringe, had been injected into the fractured parts. We did not hinder the suppuration of the fracture, because we had not then learned, *firstly*, the extensive debridement of the wound, and the exact drainage of every recess of it, and of every cul-de-sac which had formed by the detached skin, which proceeding is now done at the reception of such a patient and previous to the application of the first bandage; *secondly*, because we thought it to be absolutely necessary during the first few days, at each change of dressing, to carry the irrigator or the syringe into the wound and into the fracture, in order to wash them out properly.

Here I have further to remark, and I will say it emphatically, that such irrigations and manipulations exclude all great results under the antiseptic method. If we, on the 2d day, wash out again the coagulated blood, which forms the best cover for the injured tissues in the depth, and is the best provisional material for the filling out of all recesses and gaps—the natural glue which agglutinates everything and gives protection—then, first intention, the immediate agglutination of the fracture, in which we unexceptionally succeed, will become an entire impossibility. Only under the supposition, that after the first energetic disinfection the wound is not further irritated, the agglutinations not again dissolved, and that the tissues are not, through a continuous irrigation with the always irritating carbolic acid, again and again stimulated to a prone and exorbitant production, it is still possible that, as we have often experienced, wounds, caused by hip, knee, shoulder or elbow resections, will heal by an absolute first intention; and this will be accomplished without a drop of pus being discharged, and without a fistule remaining, in 4, 8 or 16 days, and even in such issues which are known to be less favorable for a rapid cure, cases where the resection had been undertaken on account of caries and suppuration in the joint, or where large abscesses had already been present. Equally im-

portant is the opportune and early removal of the drain tubes. In a fresh injury, or an operation in healthy tissues, if the result shall be a favorable one and the healing be rapid, we should be able to remove the drain tubes from the 2d to the 8th day, or as soon as it becomes obvious, that under energetic pressure of the circumference, no secretion escapes any more from the openings. At this time the channels, which have been kept open in the tissues by the drain tubes, may, after cessation of the secretion, agglutinate by first intention, whilst in keeping the tubes in for a longer time, the formation of fistulous tracts will be promoted. Since we have cleared up these points, and followed the present technic of bandaging, in the last 60 cases of complicated fractures, our results have been entirely unique, and I may say it without exaggeration, they have become ideal ones.

Even the most severe cases of complicated fractures healed like subcutaneous injuries, without being followed by any deep-seated suppuration. Where bones had been extensively splintered, necrosis, if it ever took place, was a minimal one; and what is of greater importance, suppuration in fractures never happened, with the exception of a few cases, in which the conservative treatment had failed, and amputation or resection had to be had recourse to, in order to save life. The chasms between the fragments, the gaping wounds, and all the spaces between the lacerated skin and the more deep-seated injured parts, were filled out with coagulated blood, whilst the serum escaped through the drains, under the contentive and tightly applied bandages. The coagulated blood, cementing the divided tissues like with a soft glue, became, so to say, organized; (that means) it was by and by, and without suppuration, substituted by remaining solid tissues.

Under the antiseptic treatment, even in the most severe cases of compound, comminuted fractures, with extensive wounds, the ends of the fragments ought never to be seen again, if no particular circumstances intervene, for instance, mortifications of the skin, covering the superficial fragments of the bone, which in fractures caused by direct power, or in extensive lacerations, cannot always be hindered.

After the application of the first bandage, the rents of the fracture do not exist any longer as such; no fistulous tracts, leading into the fracture, are cognizable, and no finger or probe ought to reach the fragments. Even under great pressure, no

secretion ought to be evacuated from the deep recesses. After the first well applied bandage, with an extensive "débridement" of the wound, and if necessary, with diverse counter incisions, all further action of the surgeon ought to be confined to but a proper redressing on the 2d, 4th, or 6th day, which is quickly to be executed, and whereby the wounds, if covered with secretas, are only wiped off with wet antiseptic cotton. Occasionally, small bony fragments or splinters may become necrotic. Pieces as large as a pea, or small, thin leafleds of bone, up to the size of a finger nail, may in some cases be exfoliated; yet such an exfoliation is not followed by fistulous tracts. Such small pieces of bone may be thrown out through the superficial granulating, or already cicatrized wound, which then will reopen without any special symptoms; or they may be resorbed in the depth of a wound, without causing any special symptoms in the granulating tissues.

That the antiseptic method attains here so favorable results, is due to the treatment, excluding those local processes and wound irritations, which formerly caused so frequently pyæmia and septicæmia. From the beginning no local reaction exists, no putrefaction, no "stadium purificationis" of the wound, and the marrow does not putrefy in the neighborhood of the fracture. The opened medullary canal of the long bones, and the denuded spongious tissue, will be covered forthwith by coagulated blood, which has to remain until supplanted by organized hyperplastic tissue.* No suppuration in fissured bones will arise, no intermuscular subperiosteal phlegmonous inflammations will originate; no collections or retentions of pus, and no more extensive necroses will be observed.

The antiseptic method permits the healing of complicated fractures, so to say, under the "humid scab." If fissures and crevices communicate with neighboring joints, the cavity of the joint has to be opened, irrigated and drained. If this is done in an acute injury, at the reception of the patient, no suppuration of the joint will arise, nor will ankylosis happen after healing

* Yet twice have I observed, in cases where the periosteum had become dedetached to some extent, a hyperplasia of bone, attaining considerable dimensions. Both cases are of recent date, and the growth of bone (one of the femur, near the trochanter, the other of the tibia, after trephining and scraping out the marrow) is still in progress, which, if not limited soon, may lead to another operative interference.—S.

has been obtained. However, all this has weight only in such cases which are of recent origin, or where the patients have been taken under treatment relatively early.

If a distinct reaction, or even a decomposition of the secretions of the wound have already occurred, or it is one of those serious cases of an acute progressive sepsis, where most assuredly the limb, if not the life, will be lost, then the result is, to say the least, uncertain. We may, as our experiences prove, probably preserve the life of the patient, and in the majority of cases, after the 2d, 3d or 4th bandage, or even later, enforce an entirely aseptic course, but the secretion will be more profuse, a suppuration of the fissured fractures will set in, and larger pieces of bone may become necrosed. A regular secunda intentio may follow, without a retention of pus, but rather with the formation of a proper inodorous, yellowish pus. We have no right to expect that in such patients, with extensive dissections of skin and large muscular wounds, a healing by first intention shall take place. Coagulated blood in such wounds will not become organized. Here the extensive use of the irrigator, at least in the beginning, cannot be dispensed with; the drain tubes have to remain during a longer period, fistules will take place and obliterate after longer intervals.

The antiseptic treatment in Volkmann's 73 cases was instituted 20 times during the first 2 hours, after the injury had occurred; 18 times after 2 to 12 hours; 14 times inside 12 to 24 hours; 9 times from 12–48 hours; and in 5 cases after 48 hours: this gives 66 cases; in the rest of the cases the time has not been specified. In one of these cases the injury was subcutaneous, but associated with considerable contusion. The fracture became first complicated by an extensive gangrene setting in, by which the fracture was widely laid open. Whenever this annoying complication was expected to take place, says Volkmann, the limb was carefully placed in an extensive antiseptic bandage, notwithstanding no open wound was present; and the result was, that gangrenescence and the subsequent open wound happened without the complication of any serious symptoms.

From the tabular compilation of numbers, respecting the time of admission, it will be observed, that even when the patients did not come early under the antiseptic treatment, yet fortunately their lives were saved. Volkmann succeeded, without any exception, in rendering the wounds still completely antiseptic.

Herein he failed only 3 times; yet in one of these cases the cause of failure consisted in another physician having taken off the bandage; another case was badly dressed by one of Volkmann's assistants; and the third one came under treatment with delirium tremens, and that condition caused, though innocently, the failure of the treatment. If we compare herewith the results which other surgeons obtained, who often failed in making the wounds antiseptic, even after the first 12 hours, we might say that Volkmann has been very lucky; still, this would not exactly be the truth. No; his results are to be attributed to the accuracy, the pedantic, *pénible* exactness, with which his cases have been treated, and which procured such an unheard of success. The primary disinfections in the beginning of the treatment of wounds, with their "debridement" counter-incisions, etc, if not executed energetically and carefully, cannot have a favorable result.

The surgeon should not hesitate to enlarge the wound to such an extent, that both fragments of a bone can be made to project out of the incision, in order to be able to irrigate the wound well and to remove blood, which might occupy the recesses behind the fragments and behind the muscles, this blood being perhaps already impregnated with the motors of decomposition. The number 73 besides is large enough, to defy any opposition which might be willing to base the obtained results on good luck.

The 8 secondary amputations also, with the exception of one case, in which an uninitiated M.D. took off the bandage, had not been performed on account of any decomposition, or putrefaction, but because hæmorrhages had set in, and the contused tissues become mortified in too great an extent, and also because a mistake had been committed in appraising the intensity of the injury, at the time of the patient's admission.

The 8 secondary amputations distributed in regard to the time in which the patients had been admitted, were:

Amputated from those admitted inside of the first 2 hours and antiseptically dressed	1
Amputated from the 18 cases admitted inside of the first 2–12 hours	3
Amputated from the 14 cases admitted inside of the first 12–24 hours	2
Amputated from the 9 cases admitted inside of the first 24–48 hours	2
	8

This list does not prove, that the bad results were more numerous amongst those who were admitted at a later period. The fact, that inside of the first 48 hours and still later, the antiseptic treatment may be successful, and that therewith the essential advantages of it may be secured to the patient, is of great importance, and most so is this the case relative to injuries received in battle. As a principle it is certainly opportune, that the bandage be applied as early as possible After great battles, the work of the surgeon is often so augmented, that it will become impossible for him to find the proper time for each single case, which the first antiseptic bandage affords. But inside of the first 48 hours, if the conditions are not to be unproportional, all severely injured may have been dressed, if only the surgeons are acquainted with the method. Though the work of the surgeon during the first two days may be enormous, still this will again be compensated by the easier work of the subequent days. To be sure, such cases are always to be excepted where, already previous to the expiration of the first two days, acute progressive putrefaction of the cellular tissue has set in; yet such are rare exceptions. To guard against these also, the wound should be attended to previous to the expiration of the first 12 hours. A cold winter and a hot summer may here also cause differences in time. Wounded, with extensive diffuse extravasations of blood, are mostly endangered, and ought by all means to be first attended to after a battle. If patients with a rapid progressive purulent phlegmonous inflammation, or, as Pirigoff calls it, an acute purulent œdema, are brought into a hospital, every trial of an antiseptic treatment ought certainly to be excluded. Nothing is left here to do but to amputate, and it ought to be performed, as far as possible from the injured parts. It is a consolation, that these operations, formerly considered as good as hopeless, if performed with extreme caution under the antiseptic treatment, very often are carried to a successful end, and that the life of the patient, although much endangered, will be saved.

According to our experience, says Volkmann, 50 per cent. of these cases will be rescued. But it is characteristic, that the wounds of such amputated do not heal by first intention, which, with a few exceptions, is the rule under the antiseptic treatment. A certain quantity of the motors of putrefaction have already been diffused into the tissues, and although the limbs will be removed at the greatest possible distance from the seat of injury,

these motors are present in the lymphatics, and mostly so in the blood of the patients suffering a high fever, and will hinder the typical progress of the amputation wound, even where the patient survives.

Having offered you, gentlemen, so far, many valuable additions to the antiseptic method, I would consider this treatise still incomplete if I should omit the important and usefnl hints which Volkmann has lately given in an exposé containing the experience he has won during the last 4½ years. In regard to the *technics of the antiseptic bandage*, he condenses the essential of the antiseptic method in the few but precious words: "*The first bandage decides the fate of the patient, and predicts the progress and the termination of the wound.*"

All counter-incisions and draining, the extraction of loose splinters, the correction of the fragments, smoothing their sharp ends, have to be executed at the first bandage, and with this the absolute disinfection of the wound. If correctness and circumspection have here prevailed, then we will not have need of again handling the knife, as long as the healing process may ever last. No drainage tubes have again to be introduced, unless that at a later period, and after all danger has passed, exceptionally the extraction of a splinter should have become necessary. Reason enough, to execute the first management of the wound with the greatest and most pedantic accuracy, and to sacrifice therewith the necessary time of half or three-quarters of an hour. At my clinic, says Volkmann, this first bandage will not be executed in the sick room, but in an entirely separated operating room. In most instances the patient is first narcotized, after which the cleaning of the injured parts with soap-water, a sharp brush, razor, and carbolic acid, is performed. In all cases the wound is dilated with the knife, so that the finger can be introduced, whilst with sharp hooks the integuments are held back, so that the fracture can be well inspected. With the finger introduced into the wound, under a stream of carbolic acid, the wound is washed out, as also all recesses in connection with it; not a particle of coagulum ought to remain; deeper wound recesses are incised from outside at the end of the cul-de-sac, in order to insert the drain tubes. In those places where the integuments have been lacerated, and torn off from their foundation to a great extent, small incisions are to be made on proper places, in

order to wash out the liquid, or already coagulated blood, and to insert short drain tubes. The torn off skin will heal on afterwards by first intention, at its base and in its total extension. We have succeeded herein in cases, where the skin was torn off from below the knee down to the malleoli; but we also made as many as 10 incisions, extending over the whole surface. Portions of muscle, if too extensively bruised, have been cut off with the scissors. If a wound, which leads to the fracture, is so placed that the fracture cannot well be cleaned, which often happens in shot-wounds, then a drain tube is only inserted, and a large incision made on another place, which communicates directly with the fracture, and from which incision the fracture can be better examined and properly cleaned. So, for instance, in a shot-wound of the thigh, where the ball is still lodging in the bone, and the opening is near the popliteal space, we here best make the incision on the opposite side of the limb. All loose splinters are to be removed; if any are attached with a broad insertion to the periosteum, they must be retained, and care taken not to loosen their insertion at the periosteum. If a fragment is pointed, so that it will be difficult to replace and keep it in its position, or if it perforates the muscles, then it is cut off with the bone plyers, to accomplish which the limb is bent, to get at the pointed bone in forcing it out of the wound. Interpositions of muscles between the fragments have to be carefully avoided, since this is the main cause of the formation of pseudo-arthroses, or of a protracted consolidation of the fractured bones. Should the examining finger experience still, pouches behind the fragments, or in the lacerated muscles, or if splinters are present, then the fractured ends have also to be forced out of the wound, for the purpose of a proper cleansing and washing out, as also for a thorough examination.

At this point the wound has to be again rubbed with the fingers, and washed out with carbolic water from an irrigator, or spout, as quickly as possible, and the bandaging done under spray. The drain tubes have to be applied, conformable to the purpose, in the most suitable manner, and it is better to use more of them, but short ones, than few and long ones. Where incisions through the skin have been made, there $\frac{1}{4}$–$\frac{1}{2}$ inch long pieces of drain tubes are inserted, vertically to the covering skin, and the wounds exactly sewed, up to the inserted drainage

tubes. In the same manner is the main incision, or dilated wound to be treated, if a prima intentio is intended. The drain tubes, which are to be inserted into the main wound, should not be carried deeper than the fractured bone, never *into* it. All drains must be cut off on a niveau to the skin, and in order to prevent their falling into the wound, are best secured with a thread, or pin, crossing their lumen. After the drains have been secured, the limb is held by assistants, whilst extension and counter-extension is made, as in any other common fracture. The position of the fragments being once more carefully examined, the wound once more washed out with the irrigator, and under pressure with the hands, all superfluous blood got rid of from the fracture and recesses through the drains, then the antiseptic bandage is applied. The wound itself, and surrounding parts, have to be covered with thick layers of carbolized gauze, which have been folded like pocket handkerchiefs, and which are held by the assistants and pressed tightly against the parts to be covered.

This proceeding is far more preferable, during the first days, to the application of the protective silk, because the 50 to 100 layers of carbolized gauze, which in this manner cover the wound, are extremely appropriate for the absorption of blood and wound secretions. Over these layers then comes the proper antiseptic bandage of Lister, as formerly described, under the application of a moderately strong and uniform pressure. The thick layers of carbolized gauze allow a proportionate compression, without causing any pain, and are necessary, in order to keep the deep tissues everywhere in contact, in order to obtain a prima intentio. The fastening of the antiseptic gauze is done with rollers, made also of gauze saturated with 3 per cent. carbolic water. The whole limb has to be surrounded with them, so that they cover it in three-fold layers. The upper and lower ends of the bandage, as well as those places where the secretions may first penetrate the bandage, are surrounded besides with benzoyl or salicylic wadding, fastened also with gauze rollers. Our object is, to furnish a bandage which excludes the air hermetically, and we believe to be able to procure the object, on the extremities at least, better than this can be obtained by the valves of an air-pump.

Great and uniform results in the antiseptic bandage, can only

be achieved under the complete, thorough exclusion of the air; and here I believe to have a valuable addition to the bandaging just described by Volkmann, in the use of india rubber plates, with which I surround the whole bandage, fastening it around the limb to the skin by moistening the edges with chloroform, or bisulphide of carbon; this addition renders the bandage absolutely air tight. In order to secure the limb properly in an immovable position, we have yet to apply splints, ets.; but of these later.

The first dressing will be removed in all severe cases, with multiplied draining, counter incisions, etc., already on the next, latest after the next day, to see if everything is in order, if no drain tube has been displaced, etc.; and in case some liquid blood has come out, or in case of a greater secretion of bloody serum, then the second bandage is applied in an equal manner, i. e., in covering the wounds with thick gauze layers. The later dressings are changed every 2–4–6 days, according to necessity. As soon as no secretion, even under an increased pressure, escapes from the wound, then the drain tubes are removed. This can be done already on the 3d or 4th day, and most so has this reference to drain tubes, which have been placed in the recesses and in the incised skin flaps, etc. At this period the drain tubes, as also the gaping wounds, are filled and agglutinated with a dark red, glassy, solid coagulum. The wounds may at this period be covered with small pieces of the so-called protective.

That in every examination of the wound, or redressing, all irrigation is to be carefully avoided, has already been mentioned; besides, no cause for such a manipulation exists, since the wonnd does not present any reaction under the properly applied bandage. The secretion will soon be a minimal one. The wound edges ought not to show the least swelling, or even redness, and a tolerably strong pressure upon the wound's surroundings cause no nominal pain.

To mention here is an accident, which I have never seen to happen, says Volkmann, in the treatment of complicated fractures but twice or three times in osteotomies. It would happen, that at the first cleaning and dressing, the bleeding would be so small, that at the renewal of the bandage the gaping wound would not present the aspect of being filled with a bloody coagulum, and that the fractured bone lay perfectly naked. In such

a case, it would be advisable to incise the edges of the wound with a fine knife, so as to permit the blood to enter the empty space, in order to secure for the wound the advantages, which under an antiseptic treatment are obtained from the covering blood-coagulas.

(To be continued.)

CASE OF ANEURISM OF THE ARCH OF THE AORTA.

REPORTED BY DR. H. D. SCHMIDT.

On the first day of May, 1877, a man, 36 years of age, and a carpenter by trade, died at the Charity Hospital from aneurism of the arch of the aorta. A post mortem examination was made, and the specimen, after being detached from the body, was handed over to me for examination. The extensive destruction, caused by the disease, of the vertebral column and ribs, together with other points of interest which the examination revealed, render the case worthy of record.

From what I learned at the hospital, it seems that my friend, Dr. J. Dickson Bruns, Professor of Practice of Medicine at the Charity Hospital Medical College, diagnosed this case in a clinical lecture, as one of aneurism of the aorta, at the time when the patient entered the hospital, on the 21st of February, 1876, and when, as yet, no decided physical symptom of the disease was present. At my request, he kindly furnished me with a sketch of his clinical remarks at the time, which I deem sufficiently interesting to serve as an introduction of the subject. It is as follows.

"Gentlemen—I have an opportunity of directing your attention this morning to a case which came into our wards yesterday, and which illustrates very forcibly what I have had occasion frequently to remark, that our diagnosis is often and necessarily provisional only, and held liable to correction, or reversal, it may be, as time throws more light upon the case. The physician is sometimes imprinted with symptoms not clearly understood, not pathognomic, as we term it, and will do well and wisely to hold his judgment in suspension, as regards their final import, while immediately directing his efforts to relieve the more prominent

of these, and clearing up, perhaps, thereby which at first examination is not very explicable.

"We have here a laboring man, of robust stature, of active habits, not emaciated, apparently in sound health, who tells us that, for some months past, he has suffered in a way which renders him more and more incapable of exertion. He complains of 'pain in his chest,' increased by any muscular effort, and attended with some embarrassment of respiration on walking very fast, or on going up stairs. The pain is not acute, not referred to any particular spot; the patient finds some difficulty, though quite an intelligent man, as you perceive, in describing its character. It is constant, varying in amount merely, and that always referrable and proportioned to exercise. It is not the pain of intercostal neuralgia, as pressing on the 'points of election' demonstrates. It is not pleuritic, as the ear discovers. It is not pleurodynia; the pectoral and intercostal muscles are not affected. It does not follow succussion of these, as in coughing; is not superficial, but internal. 'The pain is *in* his chest,' he tells us. Can it be angina pectoris? No; the 'heart pang,' so characteristic of that disease, is paroxysmal—occurs always at intervals, however frequent these may be; is attended with notable disturbance of the heart's action; is usually associated with aortic lesions, and with capillary congestions of the surface and a facies anxious, or indicative of the intense anguish which is present or impending.

If the cause of the pain, then, is within the chest, it is probably due to pressure, occasioned by some tumor which is growing there. And if this were malignant, sufficient time has elapsed since it first occurred to give us some indications more positive than those at present discernible. If not a cancer, it is almost surely an incipient aneurism, and the age of the patient and his occupation favor this supposition. Let us then see if we can find any evidences in favor of this diagnosis, which we arrive at, remember, solely by exclusion, thus far, and which we hold provisionally, without bias, ready to abandon it whenever any new testimony discourages this or favors some other view.

"On stripping the patient's chest, no prominence or bulging is anywhere discoverable, nor is any thrill perceived by the hands laid on the chest in front or behind. I listen carefully over the course of the thoracic aorta, and I can detect no murmur from the vessel, no *bruit* or bellows sound, synchronous with the systole of the heart. But all these are too frequently absent in the early

stages of aneurism to discourage further search. Examining the heart, I detect no evidences of valvular lesion; but the second aortic sound (diastolic) is slightly altered, its characteristic sharp accentuation being decidedly impaired. The left radial pulse, too, is weaker than that of the right side—perceptibly weaker, I think you will agree with me, even to the inexperienced touch. This is by no means rare in healthy persons, however, and we cannot therefore lay much stress upon it as a diagnostic element. But on auscultation of the left interscapular space, or on the arch of the aorta, although I cannot detect any bellows murmur, I find a distinct disparity of the bronchial respiration, as compared with that of the same area of the right. Here, on the left, the inspiration is wavy and interrupted, and the expiration somewhat rough and a little prolonged. The patient, as you perceive, has, moreover, a slight cough, with a little mucous expectoration.

"This is all that the most careful examination reveals, and, although not sufficient to base a positive diagnosis upon, it warrants, I think, a guess. Now a guess may be based upon such grounds, as to merit the distinction of a scientific hypothesis, or it may be purely hap-hazard. Of the former sort of guessing, we had an example this winter. You will all remember the little boy who was sent into this ward from an asylum, without any history of his case, and unable to give any account of himself, except that he had a fever a few days before. He denied that there had been any eruption. There were no traces of any on his admission. The skin, indeed, was pale and cool, but his tongue was characteristic. He had the pathognomonic 'strawberry tongue' of scarlatina; 'only this and nothing more.' We 'guessed' therefore, that it was a case of *scarlatina sine eruptione*, and that in all probability anasarca would ensue. In fact, I made so bold as to assure you that he would have albuminuria within twenty-one days, and to verify our diagnosis, we kept the little patient in the ward, where you saw him playing about every day in apparently fine health and spirits. But on the twentieth day, anasarca of the feet and ankles began, and examination revealed albumen and epithelial casts in the urine, and the little fellow died of acute desquamative nephritis.

"No equally pathognomic sign is present in this case, but from the impairment of the valvular element in the second aortic sound, from the comparative feebleness of the left radial pulse, from the evidences of pressure on the large bronchial tubes in

the anatomical site of the aorta, and from the constant depressing pain, inexplicable on any other hypothesis, I venture in this case to guess, with much confidence, that we have here an aneurism of the thoracic aorta—of the arch, probably—and as my term of service will soon end, I will turn the patient over to my successor, with a request to keep him under observation, and to report the result to us at our next session. I shall be agreeably surprised if the diagnosis proved incorrect."

From this time, as I learned from the successor of Dr. Bruns, and some other sources, up to the 12th of May, when the patient for a short time left the hospital, no additional symptoms, to indicate the disease in question, were observed; and the diagnosis made by Dr. Bruns was seriously questioned by a number of the younger members of the profession. But shortly after the patient had reëntered the hospital on the 1st of June, the pain of which he had formerly complained became more intense. A small pulsating tumor, without thrill or murmur, presented itself on the posterior superior edge of the left scapula, which slowly continued to increase in size. Before long, however, the murmur and other characteristic sounds were detected by auscultation, and the patient became subject to a gradual emaciation, which in the fall of the year attained quite a high degree. His color became very waxy and sallow, and there was an expression of continual pain on his countenance. The pain he mostly complained of was in the upper part of his chest and back; he also suffered from considerable dyspnœa, from which condition he obtained some relief by bending his body forward.

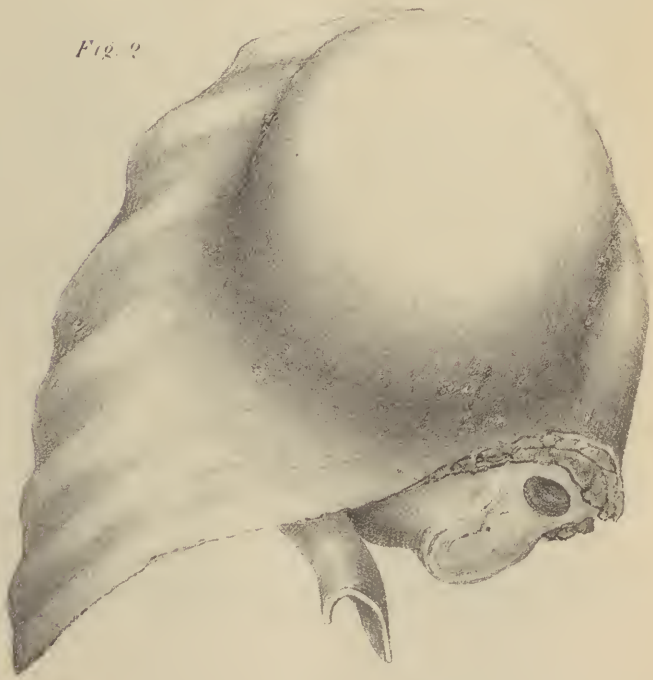
To relieve his pain, which, moreover, was periodical in character, hypodermic injections of solution of morphia were administered from time to time; but there were days on which he seemed to enjoy comparative ease from the pain, not asking for these injections.

The skin was cold and clammy, though his appetite and deglutition were unaffected, and, according to his own statement, he ate as much as he could get; his digestion, likewise, was apparently good, though he suffered from constipation. The urinary functions, also, were normal. But while the organs of digestion seemed to be in a normal condition, his lungs were not, as he coughed continually, expectorating a frothy mucus.

Thus the patient lingered on throughout the winter, walking and roaming about the hospital until two months before his

Fig. 1.

Fig. 2.



Drawn from nature by the author

H. Kitney, Ph. Mag. Ser. 5. Vol. 6

death, much debilitated by long suffering, his gait became unsteady, and was followed, a few weeks afterward, by complete paraplegia and inability to pass his urine, in which condition he remained until his death. The great emaciation of the patient during the course of the disease, of course, was referred to pressure upon the thoracic duct, and the paralysis to absorption of the bodies of the vertebræ allowing the blood to press upon the spinal cord.

The post mortem examination, which, as must be regretted, was not extended as the case deserved, showed the heart in place, and the lungs, with the exception of that portion adhering to the tumor, in an apparent normal condition.

The aneurismal tumor, as will be seen by referring to the accompanying drawings, extended from a little beyond the heads of the ribs on the right side of the vertebral column into the left of the thoracic cavity, measuring 7 inches in this direction, and vertically from the second to the seventh rib measuring 5 inches; its antero-posterior diameter was $4\frac{1}{2}$ inches. Near the middle of its lateral diameter, it presented a slight constriction in a vertical direction, dividing it to a certain extent into two portions, a right and a left. The latter showed on its anterior surface the area over which it had been adhering to the left lung. From this surface, also, fibrous bands, in the form of a false membrane, were observed to extend from the wall of the tumor to the inner surface of the thorax. The right portion of the tumor adhered to the descending limb of the arch of the aorta, in which part of the vessel the orifice of communication between it and the aneurismal sac was found. This was oval in shape, $1\frac{1}{4}$ by $\frac{7}{8}$ of an inch in size, and presented a round and smooth margin, from $\frac{1}{4}$ to $\frac{1}{2}$ inch in width, consisting of all the coats of the aorta, and representing the remains of the aneurism in its incipient stage. A microscopic examination of a thin section of this portion of the sac revealed still the three different coats of the wall of the vessel; but beyond this margin, the *intima* and *media* were lost, the *adventitia* only remaining to be fused with the connective tissue of the *costal* pleura and the adjacent areolar tissue, of which the anterior and greater portion of the wall of the aneurism undoubtedly was formed. A number of atheromatous patches, differing in extent, were found on the inner surface of the aorta, up to the semilunar valves; they were especially promi-

nent around the orifices of the small arteries arising from the vessel, and their presence indicated that the aneurism was caused by the well-known atheromatous process. The latter had, however, not extended into the larger branches, arising from the arch. No disease could be discovered upon the valves of the aorta, or beyond them in the interior of the heart. On opening the sac of the aneurism, it was found to be lined, as usual, by several layers of coagulated fibrin, 1½ inch in thickness, and the rest of the cavity filled with clots of coagulated blood. After the removal of these contents, a very extensive destruction, caused by the solvent action of the blood on a considerable number of vertebræ and ribs, came into view. The bodies of a number of dorsal vertebræ, from the second to the seventh (these included), were almost entirely destroyed by the absorption of their spongy texture; the hard texture only was left in the form of an osseous shell. The transverse processes and vertebral plates or laminæ on the left side of the third, fourth, fifth, and sixth vertebræ, were entirely destroyed; of the second and seventh vertebræ, only portions of these parts were remaining, crumbling to pieces, however, by the touch. The spinous processes of all these vertebræ were still left; on their left side the destruction had also commenced. Owing to this partial destruction of the spinal canal, the spinal marrow, inclosed within the dura mater, was laid bare in the course of the first-mentioned vertebræ, and partially so in the second and seventh. Owing to the taking of the drawings, the specimen was put into alcohol, and the sac opened as late as on the morning of the third day after the patient's death, when the spinal marrow was found in a softening condition. It is, therefore, impossible to determine whether the softening was owing to post mortem changes caused by the contact of the clot of dead blood, or whether it had already existed during life. I am inclined to think that the latter was the case, especially as the dura mater also presented a muddy, abnormal appearance. The complete parplegia, from which the patient suffered during the last week of his life, corroborates this supposition. All of the ribs of the left side, which, included within the sac of the aneurism, had come in contact with the current of the blood, were attacked by the destructive process, and portions of some entirely destroyed, so that their ends, created by the destruction, could be felt through the posterior wall

of the sac. As the intercostal muscles were also destroyed, the sac, representing quite a tough membrane, seems to have been chiefly formed by the superior posterior serrated muscle and the adjoining vertebral aponeurosis, as well as other adjacent structures, and thickened by the chronic hyperæmia consequent upon the irritating effects of the current of the blood, and the neighboring destruction of tissue caused by it. After the destruction of the intercostal muscles, the aneurism extended beyond the ribs, and manifested itself in the form of the tumor already mentioned, appearing at the posterior margin of the scapula, and forming, finally, a very considerable prominence, as the accompanying drawing will show. The destruction of the osseous structure of the vertebræ, of course, also conditioned that of all other structures, lying in contact with that part of the vertebral column enclosed within the sack of the aneurism, and it is for this reason that not a trace of the thoracic duct, superior hemiazygos vein, pneumogastric and sympathetic nerves, lymphatic glands and vessels, etc., could be discovered. Even for a short distance outside of the tumor, as far as the specimen extended, all seemed to have been obliterated.

There is a point of interest in the above case, relating to the deviation of the lymphatic current coming from the lower extremities, abdomen and its viscera, as well as from the left side of the thorax and left lung, caused by the obliteration and destruction of the upper portion of its legitimate channel, the thoracic duct, through which it passes in order to reach and mingle with the returning current of the blood, at the junction of the left internal jugular and subclavian veins. If this obliteration had occurred suddenly, or within a short space of time, the patient would certainly have soon died of inanition. But as it happened, the disturbance in the lymphatic circulation commenced as a mere pressure upon the thoracic duct by the growing aneurismal tumor, and some time was left to the lymphatic current to seek some new and collateral channels. But as this current, by virtue of the existing valves in the interior of the lymphatic vessels, and which only open in one direction, which is towards the heart, can not pass onward but in this same direction, the establishment of collateral currents is beset with far greater difficulties than in the case of the arterial or venous circulation. In the case before us, therefore, the lymphatic current, coming from

those parts and organs above mentioned, must first have passed through the general network of minute lymphatics existing in all tissues of the organism, in order to enter, on the left side, some of the larger lymphatic vessels joining the upper portion of the thoracic duct, near its junction with the subclavian vein; or, on the right side, to enter into those lymphatic vessels coming from the right portion of the liver and diaphragm, left thorax and lung, and passing to the lesser or right lymphatic duct. As regards the chyle or lymph, derived from the digestion of the fatty and amylaceous matter in the small intestines, and absorbed and carried by the so called lacteals, it is more than probable, that, in face of this impeded lymphatic circulation, only a small portion of it was absorbed and carried to the blood, while the rest passed on to be discharged with the fæces; for as soon as the lacteal system of vessels was filled, the absorption of these matters must naturally cease at the arrest of the lymphatic circulation. And this condition appears to have existed here; for, as the aneurism never bursted, nor caused any visible grave injury by its pressure upon the neighboring organs, the patient eventually died of inanition, caused by the defective absorption of the nutritive matters contained in the sufficient quantity of food which he took, as his history showed, into his stomach, and which he also digested. His extreme emaciation and exhaustion corroborate this deduction.

Explanation of the Illustrations.

Figure 1.—Representation of the aneurismal tumor in the interior of the thorax. Upon the right portion of the tumor, a portion of the walls of the aorta is left to show the oval orifice of the aneurism, the inner surface of the vessel; also the atheromatous patches; the rest of the vessel has been removed, in order to show the whole extent of the tumor. Upon the left portion of the tumor, the area over which the left lung was adhering to it will be observed; the dark lines and spots represent carbonaceous deposits into the thin layer of lung-tissue left. The uppermost rib in the drawing represents the second in nature.

Figure 2.—Representation of the aneurismal tumor, bulging out at the left of the dorsal region on the external surface of the thorax.

LOCAL SPASM, WITH PARTIAL RETENTION OF THE PLACENTA, ACCOMPANIED BY UTERINE HÆMORRHAGE.

BY J. McF. GASTON, M.D.,

Campinos, San Paulo, Brazil.

In connection with a number of unique cases of irregular contraction of the uterine walls, with partial grasping of the placental mass, attended by hemorrhage from the remaining relaxed surface, I beg to call the attention of the medical profession to a notice of a case of Dr. Goldschmidt, in the *Monthly Abstract of Medical Science*, published in Philadelphia, for March of the current year.

He says: "On October 30, I was called to a woman who had been delivered two hours previously, and who exhibited alarming symptoms.

"The history of the case was as follows: I had attended her in three previous pregnancies. On the first occasion, I had to remove the after-birth after it had been retained an hour; and on the second and third occasions, I was called in to remove the placenta, which had been retained several weeks after abortion. Last June she had considerable hemorrhage, but she bore it without detriment to the child. The child was a full term, strong female. The midwife said that the labor was very quick. After the delivery of the child the uterus tilted over forwards, and at the same time there was very severe hemorrhage. The midwife succeeded in removing the after-birth and replacing the uterus, but she sent for me at once.

"On my arrival, I found the woman insensible and pulseless. The uterus was lying over the pubes, well contracted, and about as large as the fist. Both lower extremities were at once enveloped in bandages, strong stimulants were administered, and the husband was sent to a chemist for tincture ferri, acetic ether, and ergot. We succeeded in restoring the woman to her senses, and I was then able to make a more precise examination. The contraction of the uterus about the pubes remained as before. *Per vaginam* one came upon a series of folds, so that the mouth of the womb was not at once discoverable. It lay somewhat behind, but when it was reached the hand could be introduced into the flabby uterus with ease. Behind the entrance lay a half round, tolerably hard mass, which might be taken either for a new

growth in the posterior wall or a retroflexed uterus. The patient who in the meantime had come to herself, began to complain of so much pain in her feet, that I was compelled to remove the bandages, which I was the more induced to do because her pulse had become strong again. Unfortunately, collapse and death followed immediately. After death we satisfied ourselves as to the contraction of the uterus above the pubes.

"The necropsy revealed a very lengthened, very thin and lax uterus, the lowest portions of which were as thin as card board, and contained some small placental remains.

"Dr. Goldschmidt goes on to remark: There is no doubt that atony was the cause of the hemorrhage in this case. The continued contraction of such a limited portion of the anterior part of the uterus is of great interest. It is evident that atony may exist, although the uterus feels firmly contracted externally."

Other interesting observations in regard to this case are presented, touching the arrest of hemorrhage by bandaging the extremities, but these are omitted, as not entering in our immediate inquiry. The special consideration of the reader is respectfully asked to the historic points as to the proclivity of the subject to retention of the placenta in her previous labors, and to the fact that in this instance, the midwife removed the after-birth in all probability by force. I would also draw attention to the marked difference between the half round, tolerably hard mass, and the portions which were as thin as card board, indicating the contraction in one part and the complete relaxation in the other, during the hemorrhage in life.

Nothing being stated in reference to this hard mass upon post mortem examination, the presumption is raised that it may have disappeared under the influence of the general relaxation of death, as would be a natural result of muscular spasm.

This appears to be an extraordinary case, and hence demands more than ordinary attention, and it becomes those engaged in obstetric practice to consider whether all was done that might have been done, or that should be done in other such cases, to arrest a fatal termination. With an experience of thirty (30) years in the management of all the varieties of labor, I am not without the pale of those who are prepared to estimate the bearings of this condition of the uterus upon the welfare of the woman in childbed, and upon the interests of those who have to minister to her relief.

In my humble judgment, no more important issue can be presented to the obstetrician, than the solution of the difficult problem involved in the case under consideration.

A very peculiar interest in the above report induces me to record, in connection with it, my experience in a similar case, and to present the details of a number of other cases, that in my judgment might have had a like fatal termination but for a timely recourse to efficient means of relief.

On the 25th of last February, I was called to a woman who had been delivered two hours previously of a healthy child at full term, and found her almost pulseless, with a cadaveric expression, and a restlessness that indicated extreme prostration, attended with profuse uterine hemorrhage. Upon inquiry, I was informed that the midwife had taken away the placenta, and I requested to have it brought, so that I might ascertain if it was entire, but the reply that it had been already interred, precluded any examination without further delay than was admissible. Upon placing the hand over the hypogastric region a firm ball was detected, and passing the hand within the vagina, the os uteri was discovered to be in a relaxed condition, allowing the passage of the hand readily into the cavity of the womb, which was quite flabby and occupied with some coagula. These being removed, the hand was again passed into the womb, and being carried upwards, detected at the upper anterior part of its walls a firm contraction, with an aperture that admitted with difficulty the point of the index finger, but by gradual dilatation the point of two other fingers were introduced, and a small fragment of the placenta was found retained within the contracted part. This was with considerable effort dislodged, and by a persistent expansion of the points of the fingers, the rigidity in the parieties was overcome, and retaining the hand for a short time within the general cavity of the womb, it was found to engage uniform contraction throughout its entire walls, thus obliterating the very marked inequality of the flaccid and rigid portions which had been presented in the outset. Withdrawing the hand, and clearing away the saturated clothes that contained the blood which had been flowing so freely, dry articles were placed in contact with the person of the woman.

To my great satisfaction the flooding was found to have ceased completely, and my attention was directed forthwith to the restoration of the exhausted forces of the woman. Brandy had been

given to her while my operative proceeding progressed, and now it was continued freely with the use of sulphuric ether and strong coffee.

To obviate any possible return of the relaxation, I ordered also an infusion of ergot and cinnamon, with the application of a firm bandage extending from the waist to the pubic region.

After watching the case for more than an hour, and being satisfied that support of a more permanent nature was indicated, strong concentrated chicken soup was given to her at short intervals, with a favorable result in quieting the great sense of prostration and intense restlessness that had characterized her manner from the moment I first saw the case.

Upon my return early the next morning, she was found with a febrile reaction, and fearing peritoneal developments, I gave her a mixture of turpentine, camphor and carbonate ammonia, with elixir paregoric, throughout the day.

On the following morning she was found comparatively relieved, but still with some sensitiveness over the abdomen, and the continuance of the medicine with nutritious chicken soup was directed.

During the afternoon of this day, the husband sent his son to say that she was apparently doing well, and as she would not perhaps require any further attendance, he desired to pay my services. A bill of fifty dollars was rendered and promptly paid, but, as I learned on the subsequent day from a third party, he considered it exorbitant for the short attendance to his wife. The only reply given was to the effect that he was charged for an obstetric operation, and not for the visits, the bill being in accordance with my rates in similar cases. I got no intimation at that time of anything unusual in the case, but in view of his expression of dissatifaction with my estimate of the service, it did not cause surprise to learn a few days afterwards, that another physician had been called to attend her with an aggravation of symptoms.

He informs me that she had some signs of metritis and peritonitis, without any return of hæmorrhage; these passed without any immediate serious result, yet there succeeded a puerperal fever, changing to a typhoid character, and eventually a third physician was called to take charge of the case, in whose hands she died within 12 days after her delivery, after taking, as I am

informed by another party, an emetic of tartar. The great prostration resulting from the inordinate hemorrhage, and perhaps some neglect during the two days intervening the discontinuance of my attention and the coming of another attendant, were sufficient to account for the after developments. I am quite sure that my interference averted an immediate fatal termination, and yet the last called medical man sought to cover his unfortunate connection with the case by endeavoring to impress upon the husband that my operation had caused the trouble

Comparing this with the case reported by Dr. Goldschmidt, and confronting these with the other cases observed by me, there rests no doubt but that they were identical in their character, and that the extraordinary phenomena of "the uterus lying over the pubis, well contracted and about as large as the fist," was nothing more nor less than a partial spasm of a portion of the fundus, containing doubtless a portion of the placenta which had been torn by the midwife, as in my case. A full confirmation of this view is presented in the fact, that "per vaginam one came upon a series of folds so that the mouth of the womb was not at once discoverable. It lay somewhat behind, but when it was reached the hand could be introduced into the flabby uterus with ease. Behind the entrance lay a half round, tolerably hard mass, which might be taken either for a new growth in the posterior wall or a retroflexed uterus."

A more complete outline of the local spasm resulting from irregular contraction of the parietes of the uterus, and the relaxed flaccid condition of the other portion of its walls, could not well be presented, and yet the observer does not appear to have comprehended the nature of the case, and made no effort to relieve it by dilatation of the rigid ball.

That there existed "placental remains" was proven by the necropsy, and it is probably inferred that they were relieved from the spasm in articulo mortis.

Dr. Goldschmidt goes on to remark: "There is no doubt that atony was the cause of the hemorrhage in this case. The continued contraction of such a limited portion of the anterior part of the uterus is of great interest. It is evident that atony may exist, although the uterus feels firmly contracted externally."

It is a matter of regret, that the original report entire of this case has not been accessible, as important considerations of the observer may be omitted in the summary given in the "*Monthly*

Abstract of Medical Science," in which the most prominent feature presented is "auto-transfusion in post partum hemorrhage."

This recourse can scarcely be requisite if the local spasm is promptly overcome by dilatation, as the general uniform contraction that has invariably succeeded in all the cases that have come under my observation is an effectual security against further hemorrhage; and a conviction of the importance of this measure must seem to interest the obstetric practitioner in the detailed report of my cases.

CASES ILLUSTRATING THE RISK INCURRED IN USING THE DAVIDSON SYRINGE WHEN THE OS UTERI IS PATULOUS.

A. C. PETTIT, M.D.

Case 1*st.* Was treating Lucy P. (colored) for chronic cervical metritis, attended with leucorrhœa, pain in the back, draggings, and general debility. Gave her quinine, iron and nux vomica, and ordered the use of vaginal injections medicated with carbolic acid and tannin. This treatment not proving successful, I introduced a carbolized sponge tent one evening and removed it the next day, ordering her to carefully and gently syringe out the vagina morning and evening with her medicated wash; was called back the next day in the evening to see her, and found her suffering violently from metritis and perimetritis, attended with a high grade of fever, tympanitic abdomen, great tenderness of hypogastric and iliac regions, and inability to pass urine. Vaginal examination revealed a very hot vagina, and a greatly swollen and very tender uterus: ordered cold spongings, turpentine stupes, and lukewarm vaginal injections, also one grain of aqueous extract of opium every three hours until pain was relieved, after which the same dose to be repeated every three, four or five hours, as required to prevent pain and secure rest; drew off her urine several times a day. I do not remember the time of her illness, but she was sick some time, and gave me much trouble. The abdominal tenderness gradually extended above the umbilicus, and the lower half of the abdomen became dull on percussion and gave a doughy feel. Finally an abscess broke through the vaginal wall, and she began to convalesce; during convalescence, kept up the medicated vaginal injections and gave quinine and other tonics. She made a good recovery,

and had little more uterine trouble; uterus was left stationary and high up in the pelvis.

Case 2d.—Attended Mrs. R., who, after a normal labor, gave birth to a large male child; placenta and membranes came away entire. There was no unusual hemorrhage, and the uterus contracted well. She was in destitute circumstances, low spirited, and bore her pains with little fortitude; had attended her on a former occasion for hemorrhage after an abortion, on which occasion the uterus underwent involution very slowly, so to assist involution and prevent hemorrhage, I ordered twenty drops of Squibb's ergot three times a day; on second day found her doing well. For the sake of cleanliness, and as a prophylactic against septicæmia, I ordered a carbolized vaginal injection to be administered every evening; found her doing well on the third and fourth days, when I discharged the case.

On the evening of the ninth day I was called back, and found her in the most intense rigor I ever witnessed, complaining of pain in hypogastric and right iliac regions, and a most intensely disagreeable taste in her mouth: administered at once hypodermically, a quarter of a grain morphia and a forty-eighth of a grain of atropia. Her head and body were extremely hot, but her extremities cold and clammy; temperature in axilla 107.5° F.; pulse at wrists could not be detected; respiration frequent and laborious; abdomen tympanitic but flaccid, with tenderness in hypogastric and right iliac regions; breasts were very large and full of milk; slight hemorrhage from uterus, and os very patulous: was told that about an hour and a half previously her husband administered a carbolized vaginal injection, she leaning forward on one elbow to assist him; he noticed that the water did not flow back as it usually did. During this process she suddenly gave a scream and fell back on the pillow, when the water came with a gush from her vagina. Immediately after this the rigor came on, and she began to complain of a most intensely disagreeable taste in her mouth. The hypodermic injection having subdued the rigor and relieved all acute pain, I instituted the following treatment to reduce temperature and improve circulation: had her head and body well and frequently sponged with ice water; the breasts seeming to be the hottest parts, had them enveloped in iced cloths frequently changed; applied ice or iced cloths to the axilla and the spine from head to sacrum; bathed

the extremities in hot mustard water, had them wiped dry and enveloped in flannels; gave internally ice ad libitum, large doses of quinine, and brandy toddies; gave carbonate of ammonia by the rectum, and dilute brandy hypodermically. Towards daylight, having partially suspended cold application, the temperature in axilla was 103.5° F., but under the fold of the breasts 105° F.; pulse at the wrists was quite perceptible, but the respiration and condition of extremities continued the same; stomach irritable, with occasional vomiting; says she feels a great deal better, but is much annoyed by the fast breathing; has had scarcely any sleep during the night. I now called in a neighboring practitioner of large and long experience; he endorsed my treatment, and thought patient would recover; regarding the case as one of pernicious malarial fever. I did not agree with him in the diagnosis, but thought the case one of shock and peritonitis, produced by the injection of the uterus with carbolized water, and my prognosis was extremely unfavorable. We agreed, however, on the following treatment, viz.: continue quinine in small doses, stimulants and fluid nourishment as stomach would bear, iced drinks in small quantities, crushed ice ad libitum, turpentine stupes to the abdomen, cold spongings pro re nata, and dry friction to the extremities.

This attack was ushered in on Sunday, about 6 p. m., and consultation was held about 4 a. m., Monday. Saw patient again about 10 a. m., Monday; temperature in axilla 102.5° F., but symptoms referred to respiration, circulation and innervation, remained the same, and confirmed me in my prognosis. Patient continued in about the same condition through the day, Monday, Monday night and Tuesday, temperature ranging from 102 5° to 103.5° F.; extremities cold and clammy; stomach irritable; respiration hurried; conversation hurried; always saying she is much better, and only wants to breathe more slowly and have some sleep; right arm very tender from the hypodermic injections of dilute brandy. On Tuesday night her temperature rose very rapidly, and I left instructions for the cold applications to be kept up constantly to head and body. I visited her at 9 a. m. on Wednesday, and found she had just expired; took temperature in axilla, and found it 106° F.

Case 3d.—Was called, on the evening of July 6th, 1877, to see Mrs. B., a lady of English parentage, corpulent build, happy dis-

position, and previous uninterrupted good health. She had been under the treatment of a physician for sterility; convex uteri had, on several occasions, been dilated by sponge tents; on previous day went to physician's office and had a sponge tent removed, returned home at 11 a. m., and syringed out her vagina with plain water, using the Davidson syringe with the rectal nozzle attached. Immediately after this she experienced a succession of rigors and severe abdominal pain, which continued, with occasional interruptions, until I saw her on the evening of the next day. I found her extremely restless, and suffering so intensely that she could not give me a history of her case. She was sitting in a large easy chair and leaning forward, her face expressing the greatest agony; her skin was coldish and perspiring. I insisted on her lying on the bed until I could investigate her trouble; she did so, but immediately resumed the easy chair, leaning forward as before, and giving vent to expressions of great pain. Without making further investigation, I gave her hypodermically a quarter of a grain of morphia and a forty-eighth of a grain of atropia; she was soon able to lie down. Vaginal examination revealed a soft patulous os, and body of the uterus so much enlarged as to almost fill up the whole pelvic cavity. It was very tender on pressure. Hypogastric and iliac regions were also very tender on pressure. Ordered warm fomentations to the abdomen. Vaginal heat was not so great as I expected to find. Saw her again in the course of an hour; skin of face and body very dry and hot; extremities coldish and perspiring; face flushed; respiration hurried, and temperature 106° F.; expressed herself as free of pain and being ever so much better; no inclination to sleep. Ordered her to be well and constantly sponged with ice water and gave her crushed ice ad libitum; applied a dozen leeches high up on inside of the thighs, and as they drew badly, ordered warm fomentations to the bites to increase the hemorrhage. Saw her again at 10 p. m.; skin cooler, flushed face subsided, and temperature 104° F.; no acute pain, but abdominal tenderness the same; respiration still hurried; pulse frequent, and denoting weakness; hands and arms coldish, perspiring and shrivelled; no inclination to sleep. She had discontinued the fomentations to the abdomen, because they were disagreeable to her. Ordered the constant application of cold compresses to the abdomen, that her face and body be sponged with ice water pro re nata, and her extremities be kept rubbed

dry. Ordered one grain of aq. ext. opii every three hours until sleep. She expressed great comfort from the cold compresses to abdomen.

July 7th. Saw patient at 6 a. m.; skin, pulse, temperature, and respiration about the same; no sleep during the night; stomach irritable, and abdomen a little tympanitic but flaccid; thought herself ever so much better, but was annoyed by her fast breathing and would like to sleep. I now felt convinced the case would go bad, but requested a consultation. Dr. Holliday saw her with me at 9 a. m.; he advised a continuance of the same treatment, with the addition of small doses of aconite frequently repeated, and fluid nourishment in small quantities; symptoms continued the same all day. The doctor saw her with me again at 10 p. m.; found her condition about the same, except stomach not quite so irritable. She felt, as usual, ever so much better, and only wanted to breathe easier and go to sleep, when she was sure she would be all right; concluded to give chloral, hoping if her stomach would bear it, that it would produce sleep and improve innervation generally; gave fifteen grains, and repeated in an hour and a half. She bore it well, and had some good sleep during two hours, but her symptoms were not improved thereby. As she bore the chloral well, and as the heart's action indicated a stimulant, I ordered five grains of carbonate of ammonia every three hours.

July 8th. Consultation held at 9 a. m.; concluded to continue carb. ammon., and if circulation should not improve by 12 m., to give a small dose of atropine hypodermically. I administered a large vaginal injection of lukewarm carbolized water. At 11½ a. m., condition remaining the same, I gave hypodermically one ninety-sixth of a grain of atropia sulph., in less than a half hour the clammy perspiration disappeared, and the extremities assumed a natural warmth, but the face became hot and flushed; as usual, had skin sponged pro re nata. Consultation again at 3 p. m.: capillary circulation much improved, but symptoms otherwise continued the same; the hurried respiration, hurried conversation and anxious look, were the same that I had witnessed in her sister about a year before, and I felt sure the end would be the same. Patient was very anxious to sit up, but we positively forbade it. Ordered ten drops of sulphurous acid in syrup of lemons and ice water, every two hours, all other medication to be suspended. At about 5½ p. m. I was sent for in great

haste, and found her sitting up in the large easy chair, head drooping on the chest; no pulse; eyes closed, and appeared to be dozing. She walked back to the bed with assistance, but could not rest in the recumbent position; kept jumping up with an expression of fear and agony. In a few minutes she went into a tetanic convulsion and died.

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I subjoin two similar cases, reported to the *Maryland Medical Journal* by Dr. George Johnson, of Frederick City, Md., vol. 1st, September, 1877, p. 189–190.

CASE I. Mrs. G. W., æt. 19 years, mother of one child about a year old. Six months previously she had been directed by her physician to use vaginal injections of tepid infusion of oak bark, for the relief of leucorrhœa. This she had done repeatedly, sometimes daily when annoyed by excessive discharge, and always without discomfort until upon the present occasion, February 28, 1874. Being pressed at this time by domestic duties, she hurriedly injected the infusion cold as the winter day, inserting the nozzle (which had the usual central as well as lateral apertures) as far within her person as possible. She immediately fell over upon the floor, exclaiming, "I am suffering frightfully! I have killed myself!" Peritonitis at once set in, to which she succumbed in forty-six hours, in spite of the most careful treatment of physicians and assiduous attention of friends.

CASE II. Mrs. T. W. C., mother of six children, the youngest four and one-half months old. A few days previous to the accident, having lately felt debilitated, she casually consulted a medical relative, in reference to a leucorrhœa from which she suffered, and to which she attributed her run-down condition. By his advice she commenced taking a bitter tonic, and using daily, with a Davidson syringe, a vaginal injection of sulphate of zinc—a drachm to a pint of water. This gave no inconvenience until the morning of August 28, 1876, when, feeling hurried to meet social engagement, and experiencing difficulty in inserting the nozzle as far as usual, she pressed it with unusual firmness, and squeezed the ball several times in rapid succession with some force. Her position at the same time was stated to have been semi-erect. Immediately she was seized with chill, attended by excruciating pain in hypogastrium, rapidly extending to left iliac quarter and back. This was controlled by free exhibition of morphia, but persistent tenderness over the same regions, and temperature rapidly rising to 105° in axilla, marked onset of inflammation. Examination per vaginam revealed an excessively tender retroverted uterus with os sufficiently patulous to admit tip of index finger, from which was oozing thin bloody mucus. The injection had evidently entered the uterus,

and passing through the left fallopian tube, had produced both the metritis and peritonitis which were now rapidly developed. Prompt, thorough and repeated vesication over entire abdomen, followed by warm emollient cataplasms, with morphia and quinia in full doses, constituted the chief elements of treatment, under which, with careful supporting alimentation, the patient finally recovered after days of extreme illness and suffering.

MEMBRANOUS CROUP.

BY O. S. WILLIAMS, M.D.,

Chappel Hill, Washington County, Texas.

On the 9th of last April, Charlie Bannon, aged 7 years, was brought to my office by his father, who, never having seen a case of the kind, was unconscious of the terrible malady that had seized his only son for its victim. The symptoms of membranous croup were so well marked, that no experienced eye was required to define the character of the trouble; and I at once informed the father that his son was affected with one of childhood's greatest enemies.

The child's respirations were labored, with inspirations prolonged and stridulous. Expirations were also prolonged, with accompanying low, harsh sounds; cough frequent, and high in pitch, with shrill inspirations accompanying each effort. The respiratory murmur was, with the exception of being a little weak, normal over the anterior and upper part of the chest, but somewhat masked by the tracheal *sifflc*; resonance normal. The supra-clavicular spaces were notably depressed during each inspiration.

On examination of the thorax, I found the soft palate somewhat congested; uvula œdematously inclined, and the pharynx presenting a pallid red hue. There seemed to be an entire arrest of secretion, but there were no marks or specks of adherent exudation visible anywhere. The symptoms of membranous croup were too well marked to necessitate any delay in making up a correct diagnosis, but I was perplexed and undecided what course of treatment to pursue. I had seen cases die under the (so styled) antiphlogistic treatment by calomel, and I had seen the emetic treatment meet with like results, which gave me no confidence in either of these systems when exclusively followed; yet it occurred

to me that nine-tenths of the professional brethren around me (who might perchance be called in consultation), would consider a case of croup but half treated unless the calomel, or emetic, or both systems had been *severely exhausted*. And even the people urge the use of calomel and emetics in such cases, from the prevalent custom which has been so long in vogue. Notwithstanding all this, I knew I had good authority for thinking otherwise—such men, for instance, as William Squire, J.R.C.P., Lond., who, in his article on Croup, in Reynolds' System of Medicine, entirely omits to mention mercury in connection with his treatment. Niemeyer, in his valuable work on Practice, says: "It is doubtful if calomel have indeed an antiphlogistic or even a specific effect upon croup, although very high authority is inclined to credit the beneficial effect of this agent *in its treatment.*"

Prof. J. Lewis Smith, in his well written work on Diseases of Infancy and childhood, says: "Until a recent period calomel was commonly prescribed by physicians as the most reliable remedy in croup, in the belief that it diminished the 'plasticity of the blood.' It has had its day, and is fast falling into disuse in the treatment of this as well as other inflammations."

And still one other authority, whose opinions were always deserving of the highest praise, viz., those of that noble and respected teacher, Prof. Frank Hawthorn, than whom a better, nobler or more generous man, or more faithful teacher, never graced the sanctum of any university—a man, the mention of whose name calls forth from all who knew him the warmest emotions of love and friendship that ever found lodgment in the human breast. We are deprived of his presence and counsel but not his *name*, for 'twill be linked to our memories by an indissoluble chain. He said: "In croup there is such a *rapid* and *vast amount* of effusion, that the administration of mercury can be attended with comparatively little good; and as the inflammatory process can in no way be modified by it, it can only do harm by exhausting the patient. And further, if mercury *should ever* figure in inflammation, it should be to remove the *results* of the inflammation rather than combat the inflammation itself."

Now, if I mistake not, the late Dr. Warren Stone shared largely in this opinion of *mercury being indicated to remove* the results of inflammation. For, said he, "in some forms of stricture of even

long standing I have found mercury *long continued* one of my most valuable agents."

In concluding this part of my subject, I would not be understood as positively eschewing mercury in the treatment of croup; because of its easy administration, it might be administered when other more bulky and nauseous medicines could not be given. And when used *occasionally*, as a simple *purgative*, it acts as well but no better than any *other purgative.*

Now as to the emetic treatment, all will concur in the opinion that emetics when judiciously given are productive of much good; but that much harm has often resulted from their injudicious administration, no physician of any experience will deny.

Unquestionably in the primary or formative stage of croup, or even later in the disease, emetics, by promoting a freer secretion of mucus, and by occasionally inducing *emesis*, may remove from the larynx, by the powerful expiration which it causes, albuminous or fibrinous substances which are still in a diffluent state, and which by remaining might become pseudo-membrane. Emetics may also in this stage be beneficial through a sedative influence upon the circulatory centre.

But how often are these limits transcended, and we see the child that is gasping for breath, on the verge of dissolution, and so *exhausted* as to be unable to support its own head save upon its nurse's arm, still dosed with emetics that have figured largely in reducing his strength, and sapping the vitality of his youthful being or existence?

But I am making this article too long, so I will leave controverted issues, and give a system of treatment which has succeeded well in my hands.

The case reported in this article was under treatment from the 9th of April until the 21st of June, aggregating 72 days. No less than three different times during this period all his symptoms improved, and medicine was withheld, but each time to be followed by a recurrence of all his former symptoms, again to be subdued by the same treatment—proving conclusively that I was battling not only against a most formidable foe, but against one *eager* to renew the conflict upon the slightest cessation of hostilities It proved another thing—that in my remedies I held a balance of power that was too much for my antagonist.

This was a severe test case, and it tended to strengthen my confidence in the treatment adopted, which consisted of

℞—Muriate ammonia,
Chlorate pot., - - - aa ʒiij.,
Etherial tinct. lobelia, - - ʒj.,
Tartrate antimony, - - gr. j.,
Valerianated syr. rhubarb, - - ℥iv.,
Aqua, - - - - - ʒiijss.

Mix. 2 teaspoonfuls in 2 tablespoonfuls of cream or milk every 4 hours until all symptoms improve, when the interval should be lengthened.

As this child lived in a malarious locality, quinine was administered in 4 grs. doses night and morning for *days together*.

The chlorate of potash should be thoroughly pulverized, and and then with the muriate ammonia mixed with the water, and *well shaken* before adding the syrup of rhubarb, so that any potash remaining undissolved may be suspended in the solution and given in each dose. The valerianated syrup is made as follows: ℞—Syr. rhubarb, ʒiv.; tinct. (saturated) valerian, ʒij.; oil sassafras, gtts. xx.; piperin, grs. x.; subcarb. soda, grs. xx.

I used no topical application to the throat, and used nothing externally except tinct. iodine. If this last did any good, I believe it arose from its *inhalation*, rather than any counter irritant effect it was likely to have produced.

Now when this child was first brought to my office, and even for weeks afterwards, its stridulous breathing could be heard 20 or 30 yards distant. I might with propriety remark, that I ordered milk punches continuously, as the child was unable to take any solid food. It made a good recovery, and is at this writing hearty.

I gave purgatives *only* to overcome constipation.

SUCCESSFUL OPERATION FOR IMPERMEABLE STRICTURE OF THE URETHRA.

BY DR. JAMES JOHNSTON,

Brownwood, Brown County, Texas.

Lafayette Holland, a young man twenty-four years of age, met with an accident while out riding, about nine years previous to his consulting me, which resulted in inflammation, suppuration, and finally the obliteration of about three inches of the urethral

canal, commencing at the angle between the penis and scrotum about three inches from the meatus, and extending as far back as the membranous portion of the canal. His urine dribbled involuntarily through a large number of small fistulous openings situated in the scrotum and perineum. His scrotum was very much hypertrophied; pus was constantly discharging from ulcerating canses. His health was very much affected in consequence—so much so, that his physicians advised him that an operation was not practicable and would result in his death.

After a short conversation with the patient, in which I explained to him the nature of the operation, the risk, and the chance of success, he was willing to put himself in my charge, and after improving his general health with tonics, on the 1st day of June last I performed the operation of external perineal urethrotomy in the following manner.

After placing the patient in the proper position and under the influence of chloroform, I introduced an ordinary sized catheter at the meatus, and passed it down until it came in contact with the obstruction, and directed my assistant, Dr. F. M. Edwards, to hold it in the median line, the upper end directly over the umbilicus. I then made an incision about an inch and a half long at the angle between the penis and scrotum, and divided the structure until I came to the end of the catheter. I continued to cut downward on the line of the original canal, my assistant pushing the catheter downwards as I proceeded, until I got about half-way through the serotal portion of the canal. I then made an incision between the membranous and spongy portion, and struck the healthy canal. I then proceeded to cut upwards, tunnelling underneath the testicles on the mesial line, until I met the end of the catheter, which was pushed down until the end projected from the lower opening, and allowing the patient to urinate through the perineal opening. I soon found that he could urinate with a full stream. The compressor urethral muscle soon regained its power, and in a few days he had full control of his urine. His scrotum (which was four times its normal size), commenced to improve at a rapid rate; in a few weeks his general heath was better than it had been for years. I removed the silver catheter and introduced a flexible bougie, which was more convenient, for the purpose of establishing an artificial canal, and retained it there until the upper opening had entirely healed up and the scrotum had almost assumed its

natural size. I then removed the bougie, and by a plastic operation closed the perineal opening, and the operation was complete; at the same time taking the precaution of passing a catheter daily to prevent the contraction of the artificial canal. As it is not supplied with mucous membrane, it is sure to contract if this precaution be not taken. By a little instruction, the patient can attend to this without the assistance of a surgeon. He has enjoyed excellent health for the past three months, and is now engaged at his usual avocation, feeling grateful for his deliverance from an early and loathsome death.

There is not much new in the operation, but I wish to direct the attention of the profession to the importance of keeping the outlet for the urine in the perineal incision open until the scrotal portion of the artificial canal is thoroughly established, thereby avoiding the great inconvenience and danger of the patient's life by the irritation and probable inflammation of the bladder and kidneys, by keeping a catheter inserted in the bladder, as is done in the usual way, during the whole time the healing process is going on, more especially in subjects who have suffered much in this respect previous to the operation. I believe the retention of a catheter in the bladder is of no advantage to the healing of the openings; a portion of the urine will always pass outside the catheter and find its way through the openings, its presence being a constant source of irritation. In the present case this was avoided until the last few days, and the success was remarkable.

OBSTETRICS.

BY H. ROBERI.

Editors N. O. Medical and Surgical Journal:

In reading your number of the Journal for October last, my attention was called to an article on page 294, in which I find the following:

"One further remark. When a student of medicine under Dr. W. Brickell, we were always taught that after the delivery of the child the placenta was to be speedily delivered, it being now a foreign body *in utero*," etc.

This obstetrical plan is inadmissible. Yes, it is a foreign body, but it does not follow as a consequence that the uterus ought

to be immediately emptied. After the child's birth a *truce* takes place—a relative calm, which allows the woman to feel the first delights of maternity, and mainly, the uterus to prelude to new efforts.

In fact, at the end of fifteen minutes or an hour, contractions come on and the placenta is expelled with or without aid.

Should these contractions not get up, external abdominal frictions would soon promote the desired effect. Ergot is also very valuable in these circumstances.

According to the leading accoucheurs, Dewees and Burns, whose authority is recognized, we resume:

After the delivery of the child, we may do much by not attempting the delivery of the placenta until we have insured the tonic contractions of the uterus by frictions, known by all accoucheurs, over the hypogastric region, and after its expulsion to repeat them, until the uterus seems to retire considerably within the pelvic cavity.

Should we follow these precedent rules, we would prevent all bad consequences of hemorrhage, inversion of the uterus, or the tedious stillindiums emaciating the *femmes en couches.*

ABSTRACT OF PROCEEDINGS OF THE MEDICAL CONVENTION CALLED FOR THE PURPOSE OF FORMING THE LOUISIANA STATE MEDICAL ASSOCIATION.

Fisrt Meeting—January 14th, 1878.

A circular letter, calling a medical convention to meet in New Orleans, on the 14th of January, 1878, having been issued from New Orleans, in response to resolutions passed by the Shreveport Medical Society, and the Plaquemines Parish Medical Association, a number of physicians met, at noon on the day appointed, in the buildings of the Medical Department of the University of Louisiana.

The meeting was called to order by Dr. W. H. Watkins, of Orleans.

The nomination of Temporary Chairman being in order,

Dr. W. P. Brewer, of Orleans, nominated Dr. L. F. Salomon, of Orleans.

Dr. Samuel Logan, of Orleans, nominated Dr. J. B. Wilkinson, of Plaquemines Parish.

Dr. T. G. Ford, of Caddo, nominated Dr. S. M. Bemiss, of Orleans.

Drs. Salomon and Wilkinson declined the nomination in favor of Dr. S. M. Bemiss, who was elected by acclamation, and escorted to the chair.

Dr. W. H. Watkins, of Orleans, was then nominated for the position of Temporary Secretary, and elected by acclamation.

The Chairman stating that the Convention was now prepared to proceed to permanent organization, Dr. J. B. Wilkinson, of Plaquemines, moved that the roll of parishes be called, in order to ascertain what portions of the State were represented. Seconded and carried.

The roll (as made up to the close of the Convention) reads as follows:

Parishes—Names of Representatives.

Ascension.—Dr. E. R. Connell.

Bossier.—Drs. I. T. Davis, N. T. Dillard, Thomas I. Vance.

Caddo.—Drs. W. T. Whitworth, John T. Scott, W. Hilliard, W. W. Ashton, R. A. Gray, Thomas I. Allen, A. A. Lyon, J. C. Egan, A. R. Booth, T. G. Ford, D. M. Clay.

Carroll.—Dr. I. L. Davis.

De Soto.—Dr. W. S. Frierson.

East Baton Rouge.—Drs. J. W. Dupree, A. B. Williams.

East Feliciana.—Drs. O. P. Langworthy, L. G. Perkins.

Iberia.—Dr. G. P. Minnville.

Iberville.—Drs. I. Larcade, A. B. Snell, P. S. Postell.

Morehouse.—Dr. I. D. Hammond.

Natchitoches.—Dr. S. O. Scruggs.

Orleans.—Drs. S. M. Bemiss, Samuel Logan, C. J. Bickham, M. E. Schlater, Joseph Holt, W. P. Brewer, A. B. Miles, Henry Bezou, J. C. Carter, T. G. Richardson, S. E. Chaillé, George K Pratt, Howard Smith, E. S. Drew, H. D. Schmidt, A. Chastant, A. G. Friedrichs, M. Schuppert. A. R. Gourrier, J. C. Beard, L. F. Salomon, S. L. Henry, E. T. Shepard, J. J. Lyons, Joseph Jones, C. H. Tebault, E. S. Lewis, J. A. G. Fisher, H. A. Veazie, J. P. Lehde, J. M. Watkins, W. H. Watkins, P. C. Boyer, F. B. Gaudet, Samuel Choppin, J. P. Davidson, Thomas Layton, W. G. Austin, L. A. d'Etrampes, S. S. Herrick, W. S. Mitchell, J. C. Faget, C. Faget, F. Lœber, J. B. Davis, H. Steinau.

Ouachita.—Dr. W. Sendel.

Plaquemines.—R. R. Fox, J. B. Wilkinson, C. P. Wilkinson, Booth, G. A. B. Hays.

St. Mary.—C. W. Smith.

Fifteen parishes represented.

Dr. J. B. Wilkinson, of Plaquemines, moved that members of the Convention holding the proxies of physicians of good standing in the State should be entitled to have the names recorded, and to vote on said proxies. Motion seconded and adopted.

Dr. A. A. Lyon submitted the following resolution.

Resolved, That this Convention proceed to organize a State Medical Association. Resolution seconded and adopted.

Dr. A. A. Lyon moved that a committee of five be appointed, to draw up a Constitution and By-Laws, and report at the next meeting. Motion seconded and adopted.

The Chair appointed on this committee Drs. A. A. Lyon, chairman, S. E. Chaillé, A. B. Snell, G. A. B. Hays, O. P. Langworthy.

On motion of Dr. L. F. Salomon, the Convention adjourned until Tuesday, January 15th, at 12 m.

TUESDAY, JANUARY 15TH, 1878.

Second Day—Morning Session.

The Association was called to order at 12.20 p. m., by Dr. S. M. Bemiss, Temporary Chairman.

The minutes of the last meeting were read and adopted.

The Committee on Constitution and By-Laws, through the chairman, Dr. A. A. Lyon, presented its report.

The proposed Constitution and By-Laws were read as a whole, and then submitted section by section.

Dr. W. H. Watkins, of Orleans, moved that the Constitution and By-Laws be provisionally adopted, and a committee appointed to report on Constitution and By-Laws at the next regular meeting of the Association. Motion seconded and adopted.

Dr. S. E. Chaillé, of Orleans, moved that the Constitution be enforced, and that no member be entitled to vote, or be appointed to office, unless he shall have paid the initiation fee. Motion seconded and adopted.

Dr. O. P. Langworthy, of East Feliciana, moved that the Association proceed to the election of its permanent officers. Motion seconded and adopted.

Drs. J. C. Egan, of Caddo, T. G. Richardson, of Orleans, and S. M. Bemiss, of Orleans, were nominated for the position of Chairman.

Drs. Richardson and Bemiss declined in favor of Dr. Egan.

Dr. Richardson moved that the rules be dispensed with, and that Dr. J. C. Egan, of Caddo, be elected Chairman. Motion seconded and adopted.

Dr. J. C. Egan, of Caddo, was elected Chairman by acclamation.

Dr. Egan was escorted to the chair by Dr. Richardson.

On motion, duly made and seconded, and unanimously adopted, the thanks of the Convention were tendered Drs. Bemiss and Watkins, for the ability and zeal with which their services, as Temporary Chairman and Temporary Secretary, had been rendered.

On motion, duly made and seconded, Dr. S. M. Bemiss, of Orleans, was nominated for the position of First Vice President of the Association. Motion adopted.

Dr. S. M. Bemiss was elected First Vice President by acclamation.

On motion, duly made and seconded, Dr. J. W. Dupree, of East Baton Rouge, was nominated for the office of Second Vice President of the Association. Motion adopted.

Dr. J. W. Dupree was elected Second Vice President by acclamation.

On motion, duly made and seconded, Dr. G. A. B. Hays, of Plaquemines, was nominated for the position of Third Vice President of the Association. Motion adopted.

Dr. G. A. B. Hays was elected Third Vice President by acclamation.

On motion, duly made and seconded, Dr. Thomas Layton, of Orleans, was nominated for the office of Recording Secretary of the Association. Motion adopted.

Dr. Thomas Layton was elected Recording Secretary by acclamation.

On motion, duly made and seconded, Dr. S. S. Herrick, of Orleans, was nominated for the position of Corresponding Secretary of the Association, and,

On motion, duly made and seconded, Dr. L. F. Salomon, of Orleans, was nominated for the office of Corresponding Secretary of the Association.

A ballot was had, with the result of electing Dr. S. S. Herrick Corresponding Secretary.

On motion, duly made and seconded, Dr. Geo. K. Pratt, of Orleans, was nominated for the position of Treasurer of the Association. Motion adopted.

Dr. Geo. K. Pratt was elected Treasurer by acclamation.

On motion, duly made and seconded, Dr. S. E. Chaillé, of Orleans, was nominated Orator of the Association for its first regular meeting. Motion adopted.

Dr. S. E. Chaillé was elected Orator by acclamation.

The Chair appointed the gentlemen whose names follow, members of the Committee on Permanent Organization: Drs. Geo. K. Pratt, S. S. Herrick, G. A. B. Hays, A. A. Lyon, L. F. Salomon.

Dr. S. S. Herrick, of Orleans, presented a communication from Dr. J. W. Dupree, of the Legislative Committee on Health and Quarantine, requesting the Association to appoint a committee to examine and report upon such bills as may be submitted to them, by the Committee on Health and Quarantine, of the General Assembly of Louisiana.

Dr. Herrick moved that the Chair appoint the committee, as requested. Motion seconded and adopted.

The Chair appointed on this committee, Drs. J. W. Dupree, Joseph Jones, and Geo. K. Pratt.

Dr. Layton, of Orleans, made the following motion:

The present assemblage of physicians, come together from all parts of the State, presenting a fitting occasion of paying a tribute to the memory of the late Dr. Augustus H. Cenas, one of the veterans of the profession in Louisiana, one of the founders of the Medical Department of the University of Louisiana, and Emeritus Professor of Obstetrics and Diseases of Women and Children; a gentleman who united the virtues of the private citizen with a wide-spread reputation for ability and learning; therefore be it

Resolved, That this Association express its feeling sense of the loss the medical profession have sustained in the death of Dr. Cenas; that this resolution be spread upon the minutes of the Association, and that the daily papers be requested to publish the same, and that the Secretary be instructed to transmit a certified copy thereof to the widow and relatives of the deceased.

The motion having been duly seconded, was adopted unanimously.

On motion of Dr. O. P. Langworthy, duly seconded, the meeting was then declared adjourned until this evening, at 7 o'clock.

Second Day—Evening Session.

The Association was called to order at 7.20 p. m., Vice President Bemiss in the chair.

The minutes of the last meeting were read and approved.

A communication from physicians of Tensas Parish was read. This communication asks the coöperation of the Association in procuring legislative enactments favoring medical claims.

Dr. Hammond believed, that owing to the indisposition of the present Legislature to privileged claims of all kinds, the only hope of relief physicians should entertain, would be in endeavoring to procure the repeal of the law compelling physicians to pay licenses.

Dr. Egan in the chair.

Dr. Hammond read the law upon the subject of physicians, in the Revised Statutes. The following sections were read: sections 2677, 2678, 2679, 2680, 2681, 2682, 2683. Dr. Hammond considered section 2681 extremely objectionable, and wished the Association to assist him in the attempt to have it repealed. He also desired to see that part of section 2683 which relates to physicians, erased from the statute book.

On motion of Dr. Gourrier, of Orleans, duly seconded and adopted, the communication from Tensas Parish, above referred to, was handed over to a special committee of three.

The Chair appointed on this committee, Drs. Hammond, Wilkinson, Sr., and Scruggs.

Dr. Joseph Jones offered the following resolutions:

Resolved, That in consequence of the existence and destructive effects of small-pox in various portions of the State of Louisiana, during the past seventeen years, the attempt should be made to arrest and circumscribe this disease, by proper sanitary regulations and legislative enactments.

Resolved, That the Representatives of the people are empowered to enact suitable laws for the arrest and complete eradication of small-pox; and that it is as much the duty of the Government to protect its citizens from this disease, as to exclude the introduction of foreign pestilence by quarantine regulations.

It having been moved and seconded that Dr. Jones' resolutions be adopted by the Association, Dr. Hammond presented the following:

Resolved, That it be the request and desire of this Association, that the Legislature pass an act requiring compulsory vaccination.

The resolution was seconded and carried unanimously.

Dr. Scruggs, in alluding to the prevalence of quackery, and the disadvantages under which the profession labored in consequence thereof, offered the following:

Resolved, That a committee of five be appointed, whose duty it shall be to draw up a petition to the Legislature, in the name of this Association, to pass a law reëstablishing medical boards throughout the State.

Dr. Hammond moved, as a substitute for Dr. Scruggs' resolution, that Dr. Scruggs be appointed chairman of the Special Committee on the Communication from Tensas Parish, instead of himself.

Dr. Bemiss in the chair.

Dr. Egan thought that the proper mode of repressing quackery would be the establishment of parochial medical associations, in accord with this parent Association.

Dr. Egan resumed the chair.

Dr. Hammond, seconded by Dr. Brewer, called for a vote on his substitute.

Dr. Scruggs, seconded by Dr. Ford, moved that Dr. Hammond's substitute be tabled.

Dr. Lyon moved to postpone consideration of legislative enactment, until this Association be more firmly established.

Dr. Scruggs' motion to table Dr. Hammond's substitute was adopted.

Dr. Scruggs' original motion was then called.

Dr. Chaillé proposed to amend the same by substituting, that a committee of five be appointed, to consider the propriety of petitioning the Legislature to reëstablish examining boards.

Dr. Chaillé's amendment having been seconded and adopted, the Chair appointed on the committee, Drs. Scruggs, Chaillé, Richardson, Bemiss, and C. J. Ford.

The Chair then appointed the following committees:

On Reports and Essays.—Drs. S. M. Bemiss, Wilkinson, Sr., A. A. Lyon.

On Publication.—Drs. W. H. Watkins, A. B. Miles, Thomas Layton.

On Judiciary.—Drs. R. A. Gray, O. P. Langworthy, P. S. Postell, C. M. Smith.

On Necrology.—Drs. Fox, Scruggs, and Faget, Sr.

On Arrangements for Anniversary.—Drs. T. G. Richardson, P. C. Boyer, C. J. Bickham.

Dr. A. A. Lyon moved that the next meeting of this Asssociation take place in April next, in New Orleans.

Dr. W. H. Watkins moved for a suspension of the rules, and asked that the next meeting of this Association be held in New Orleans, on the second Wednesday of April, 1879. Seconded.

A division having been called for, 13 members voted in favor of Dr. Watkins' motion; 8 members were opposed to it. Motion carried.

Dr. Wilkinson, Jr., thought that the two subjects embodied in Dr. Watkins' motion could not be acted upon together, and therefore he objected to its passage.

The Chairman informed the Association that as no rules had been instituted for its government, he had assumed that a majority should rule, and acting upon this assumption, he decided that Dr. Watkins' motion had been adopted.

The ruling of the Chair was accepted.

Dr. A. A. Lyon presented an additional constitutional article, which had been overlooked at the morning session. This article relates to financial details, and after its having been amended by Dr. Chaillé, with the consent of Dr. Lyon, it was adopted, and ordered to be incorporated in its proper place.

On motion of Dr. Hammond, duly seconded, the meeting then adjourned until January 16th, 1878, at 10 o'clock a. m.

Wednesday, January 16th, 1878.

Third Day.

The Association was called to order at 10.30 a. m.

Dr. S. M. Bemiss in the chair.

The minutes of the last meeting were read and adopted.

Dr. A. A. Lyon presented the following:

Resolved, 1st, That the Committee on Publication be ordered to publish, in addition to the proceedings of this Convention, a

list of members, the Constitution and By-Laws, as adopted, and the Code of Ethics of the American Medical Association.

2d. That the President appoint a committee of three, with Dr. T. G. Richardson as chairman, who shall prepare a circular letter addressed to the medical profession in Louisiana, recommending the organization of local medical societies throughout the State. This circular letter shall also be appended to the documents required to be printed by the first section of this resolution.

3d. That one thousand copies of the above indicated documents shall be published in pamphlet form, and a copy sent to every regular physician in the State.

Resolution seconded and adopted.

The Chair appointed on this committee, Drs. T. G. Richardson, W. H. Watkins, and T. Layton.

Dr. Hays in the chair.

Dr. Hammond presented the report of the Special Committee appointed on the Communication received from physicians of Tensas Parish. The reporter expresses the belief of the committee, that it would not be practicable to obtain the assent of the Legislature to the questions raised by the Communication from Tensas. As a partial measure of relief, however, the committee recommend application to the Legislature, by this Association, for the abolition of the license tax now required to be paid by physicians.

Dr. Egan in the chair.

On motion of Dr. W. H. Watkins, seconded by Dr. A. B. Miles, the report of the Special Committee, just read, was adopted.

The election of delegates to the next meeting of the American Medical Association was then declared to be in order.

After a discussion as to the possibility of electing such delegates, in the present stage of the Association, in which Drs. Lyon, Hays, Gourrier, Wilkinson, Sr., Bemiss, and Henry, participated, and in the course of which, on motion of Dr. Wilkinson, Sr., duly seconded, the Association decided upon the adoption of Jefferson's Manual for its guidance in the future, it was moved by Dr. S. M. Bemiss, and seconded by Dr. Henry, that this Association do now proceed to elect delegates. Motion adopted.

On motion of Dr. Miles, duly seconded, it was determined to appoint delegates by nomination and election. Adopted.

On motion of Dr. W. H. Watkins, seconded by Dr. Booth, it was decided to elect *seven delegates.*

Drs. W. G. Austin, Wilkinson, Sr., G. A B. Hays, J. C. Egan, T. G. Ford, R. R. Fox, M. Schuppert, A. A. Lyon, were nominated, but declined.

The following named gentlemen were elected delegates: Drs. S. E. Chaillé, T. J. Allen, Geo. K. Pratt, J. W. Dupree, Samuel Logan, O. P. Langworthy, Samuel Choppin.

Dr. S. E. Chaillé proposed the following resolutions:

Resolved, 1st. That every member of this Association be charged with the duty of endeavoring to secure the organization of a medical society in each of the parishes of this State, prior to April 1879.

That the Corresponding Secretary keep on record the names of all local medical societies in this State, together with a list of the officers and members, and a copy of the constitution and by-laws of each of said societies, as well as a list of all practising physicians throughout the State, and that this list be divided into three classes, as follows:

1st. Physicians of unquestionable repute.

2d. Irregular practitioners.

3d. Physicians whose standing is unknown or doubtful.

Resolved, 2d. That a committee of five be appointed, with the title of "Committee on Legislation and Legislative Enactments," whose duty it shall be to consider the propositions of any reputable physicians of this State to repeal, modify or enact, laws relating to medical interests; provided, such propositions be presented to the committee in the proper language and form for legislative action; and that said committee shall report to this Association, when advocating its influence in favor of any legislative action, the form and words of the law which they propose shall be enacted by the Legislature.

Resolved, 3d. That in view of the existence of leprosy in this State, a committee of one be appointed to report on the subject of this disease at the next meeting of this Association.

Dr. Chaillé's three resolutions having each been seconded, were adopted.

The Chair appointed as members of the *Committee on Legislation and Legislative Enactments*, Drs. J. D. Hammond, L. J. Perkins, W. G. Austin, S. S. Herrick, Samuel Choppin.

The Chair appointed Dr. L. F. Salomon on the Committee on Leprosy.

On motion of Dr. Herrick, duly seconded, it was agreed to add two members to the Committee on Health and Quarantine appointed at the day session on the 15th inst.

On motion of Dr. Joseph Jones, the Chair appointed Drs. Samuel Logan and F. B. Gaudet as the two additional members of the Committee on Health and Quarantine.

On motion of Dr. G. A. B. Hays, duly seconded, it was decided to instruct the Recording Secretary to prepare a summary of the proceedings of this Association, for the use of the Editors of the *New Orleans Medical and Surgical Journal*, in case these gentlemen should desire to publish the same. Motion adopted.

Dr. S. M. Bemiss, chairman of the Committee on Reports and Essays, stated that the gentlemen whose names are given below had agreed to read papers, at the next meeting of this Association, upon the following subjects:

Dr. M. Schuppert. 1st. The Cure of Epithelial Cancer can no longer be doubted.

2d. It is Possible to Cure an Oblique Fracture of the Thigh-bone without shortening.

3d. The Radical Cure of Neuralgia of the Eyebrow, if not Relieved by Resection of the Second Branch of the Fifth Pair, Consists in the Resection of the Facial Nerve.

4th. The Proper Treatment of Diphtheria.

Dr. A. B. Miles. Statistics of Surgical Operations in Charity Hospital, New Orleans.

Dr. J. Hammond. Malarial Hæmaturia.

Dr. Joseph Jones. Comparative Pathology of Malarial and Yellow Fevers.

Dr. H. D. Schmidt. Pathology of Organic Diseases of Nervous System.

Dr. W. G. Austin. On Yellow Fever in New Orleans, in connection with Strict Quarantine, and the use of Disinfectants and Fumigation.

Dr, D. R. Fox. Medical History of Diseases of Parish of Plaquemines.

Dr. Wm. Sendel. On Conservative Medicine.

Dr. D. M. Clay. Improvements in Gynæcology.

Dr A. A. Lyon. On Conservative Medicine.

On motion, duly seconded, the report of Dr. Bemiss was adopted.

Dr. Chaillé inquired if it were intended that the Committee on Arrangements should provide for an anniversary dinner, and for a chairman for the anniversary dinner.

Upon an affirmative answer being given by the Chair,

Dr. Hammond proposed Dr. Scruggs, of Nachitoches, as chairman of the dinner to be given.

Dr. Hammond's motion was seconded and adopted, with the understanding that a special fund would be raised by subscription among the members to provide ways and means for the anniversary dinner.

Dr. O. P. Langworthy moved that the Committee on Health and Quarantine be requested to petition the Legislature for an additional appropriation for the Insane Asylum at Jackson. Seconded by Dr. Salomon. Carried.

On motion of Dr. W. H. Watkins, duly seconded, the Association adjourned, until the second Wednesday in April, 1879.

THOMAS LAYTON, M.D., *Recording Secretary.*

CURRENT MEDICAL LITERATURE.

Translations from the "Journal de Medicine and de Chirurgie Pratiques."

BY D. C. HOLLIDAY, M.D., NEW ORLEANS.

ON THE USES OF NARCEINE AND CODEINE.

The works of Claude Bernard have already shown narceine to be the most powerful *somniferous* agent contained in opium.

Nevertheles this preparation is rarely used in practice; and it was to establish clearly its real worth, and positive advantages over the other alkaloids contained in opium, that Mr. Barnay undertook his researches on the comparative effects of narceine, codeine and morphine.

According to Mr. Barnay, narceine should take the first rank amongst the alkaloids of opium.

The result of his experiments prove its chief action to be that of a *hypnotic*, producing the natural sleep of health; unlike the sleep produced by morphine, the patient awakes refreshed, and

free from nausea, vertigo, or hebetude; it never produces the painful itching, or tendency to convulsive action, so common when *codeine* has been exhibited.

The tonic properties of narceine are inferior to those of morphine, and much less than those of codeine.

According to Dehaut, besides its hypnotic effect, narceine, when given in chronic bronchitis, produces a most happy effect, in modifying favorably the expectoration and diminishing cough.

Mr. Behier adds his testimony as to its beneficial effects in *phthisis*, not only diminishing cough and expectoration, but lessening the diarrhœa.

M. Lahorde corroborates the above most favorable effects in phthisis, and also states that he has obtained from its use the most marked benefit in whooping cough.

The only drawback mentioned in its use is the occasional production of dysuria.

This alkaloid may be employed in the same manner as morphine, either by the stomach or hypodermically. We would here remark that Trousseau and Pideux (in the Traitê de Thérapeutique) do not advise its hypodermic use, on account of its extreme insolubility.

Its extreme *rarity* is another difficulty to be overcome before it can come into general use; but this will no doubt be remedied as soon as the profession at large recognize its merits, and it is awarded the place in our pharmacopœia its usefulness warrants.

As to *codeine*, Mr. Barnay remarks that it should be rejected from our list of remedies, inasmuch that it frequently produces convulsions; and a most interesting and important fact to be noted in its use, is that when exhibited *even* in large doses with apparently no danger, if these doses be increased even in the slightest degree (say 1 to 2 milligrammes), convulsive action frequently suddenly appears, and may even prove fatal.

ACTION OF THE HYDROCHLORATE OF NARCEINE.

In corroboration of the researches of Mr. Barnay, reported in your August No., on the effects of narceine, I would call attention to the fact, that in 1871 *Dr. Petrini*, now of Bucharest, at that time Interne at the Hotel Dieu Paris, published a thesis on the *Hypodermic Use of the Hydrochlorate of Narceine.*

M. Petrini, recognizing the great difficulty of administering

this drug as an alkaloid, owing to its great insolubility, conceived the idea of employing one of its salts, as had been previously done in the case of morphine, atropine, and quinia.

He selected the hydrochlorate, on account of its great solubility. He procured from *M. Fontaine* this preparation chemically pure, which is extremely rare in commerce.

In the thesis above mentioned, he reports 14 carefully recorded observations of the hypodemic use of the "*hydrochlorate of narceine.*" Employed in this manner, its *sedative* and *soporific* effects not only equal, but are far superior to those of morphine.

These experiments were practised at the Hotel Dieu, Paris, in several wards, but especially in those of Prof. Behier, under the supervision of chef de clinique, M. Lionville.

Several case of *obstinate sciatica*, and neuralgia of different nerves, which had resisted the careful use of injections of morphia and atropia, *rapidly* improved under the hypodermic use of *hydrochlorate of narceine*, of the strength of half a centigramme to 1 and 2 centigrammes (1–12 to 1–3 of a grain).

In a chronic affection of the spine accompanied by excruciating pain in left sciatic nerve, with total loss of sleep, under the use of the injections of narceine the pain was relieved and sleep procured.

While myself Interne at Hotel Dieu, says Dr. Conyba, I tested the vaunted efficacy of the above preparation, used hypodermically, to relieve the pain and consequent wakefulness produced by a scrofulous inflammation with caries of the tibio tarsal articulation, with the happiest results.

Dr. C. goes on to state, that for some time at his evening visit, he had employed in the above case subcutaneous injections of a sulphate of morphine, giving it in as large doses as *one grain*, and failed to relieve, even when practised around the seat of disease, or in the nervous centres. But so soon as an injection of (1 centigr.—1-6 of a grain) hydrochlorate of narceine was used, the relief was instantaneous.

He further states, that the above injections continued to produce this beneficial effect for some time, and whenever the patient consented to have them used the result was always favorable.

Dr. C. states still further, that since the above experiment he has frequently employed, subcutaneously, the hydrochlorate of narceine, and its sedative power has never disappointed him,

and says that he cheerfully states the above facts in support of the views of Dr. Petrini, so ably advocated in the thesis referred to.

ACCIDENT PRODUCED BY A WINE CONTAINING PLASTER IN SOLUTION.

M. Lugan (d'Orpic) pharmaceutist, reports in *Lannéc Medicale de Caen*, having been requested to analyse a wine which had produced marked symptoms of dyspepsia, with loss of flesh.

This wine produced, a few moments after being swallowed, a constriction about the pharynx, and intense heat over the epigastrium.

The analysis showed no organic matters used for coloring, no addition of alcohol, so common in the preparation of wines, nor was the presence of alum shown, which is so frequently used to deepen the *color* of wines, and also to impart that styptic astringency so common in Bordeaux wines.

On the other hand, M. Lugan only discovered the presence of plaster, which, estimated in sulphate of potassa, was equal to about ʒiss to the quart.

He advises, therefore, where wines produce the above symptoms, this adulteration may be suspected.

FACIAL NEURALGIA RELIEVED BY THE LIGATURE OF THE PRIMITIVE OR COMMON CAROTID.

At a meeting of the Vienna Royal Medical Society, Dr. Patrabou reports three cases of obstinate facial neuralgia, which he treated by ligation of the *common carotid.* In two cases the cure was *complete;* in the third, there was marked alleviation of all suffering for a period of 3 years.

According to the Doctor, there is but little or no risk in the operation, and it may be readily undertaken. In these obstinate cases, which having resisted all forms of treatment, the sufferer is willing and even anxious to submit to any treatment affording the least chance of relief.

We only cite (says the *London Medical Record*) the above as one of the *curiosities* of medical literature, the physiological action of which would be extremely difficult to explain.

EPIDEMIC OF LEAD POISONING.

We referred last month to an *epidemic* of *lead poisoning*, observed under such peculiar conditions, that we think we will now briefly state in detail the facts of the investigation so ably conducted by Dr. Ducamp, and by him reported to the Society of Medicine and Public Hygiene, and published in the "*Tribune Medicale.*"

During the past few months, M. Ducamp met with such a number of cases of *lead poisoning* in his practice, as to arouse his attention to the fact that some *general* cause was at work producing such numerous results. The number of cases observed amounted to sixty-five, affecting in some instances whole families, and indifferently all ages.

To explain this general cause: the water was at first suspected, but on careful analysis of the water the presence of lead failed to be detected; besides the water supply was not the same in many of the cases treated, therefore water was rejected as innocent.

M. Ducamp recognized, as he states, that if the cause of this poisoning was to be found in some condition common to the general diet of all those persons affected, it should also be found in some condition of diet peculiar to this group of persons affected.

The above idea pointed out the course to be followed, in investigating the cause of the disease.

The investigation into the diet of each family proved at once that the *wine*, so universally used, was not the vehicle of *poison* from the *varied* sources of supply, which was established at the outset of the enquiry. The same thing obtained with regard to the groceries, but it was immediately observed, that in every instance the bread came from the same bakery.

This, then, was the cause common to all, and peculiar to this group.

M. Ducamp, per contra, soon established the fact, that in his own practice none of those who escaped infection procured their supply of bread from this particular bakery.

It was then almost proven that the bread was the toxic agent, and this proof was sustained by analysis.

But how was the bread contaminated?

It is a well-known fact that many bakers, to *whiten* their bread,

add the subacetate of lead to the dough made from damaged flour.

But in this particular instance, the recognized honesty of the baker placed him above suspicion, besides which he himself was amongst the first affected, and all his employees also.

The water *common* to the whole district could not be suspected, nor the vessels or tools used by the baker.

The flour, too, was the same as that used by all bakers in the neighborhood, and whose patrons were not affected.

It was then that M. Ducamp, instigated by Prof. Gubler (who had already reported *two* facts of *pastry cooks* being poisoned by heating their ovens with *old painted wood*), conceived the idea of a scrutinizing inquiry into all materials used for heating his ovens by the baker in question. It was proven by this investigation, that he *used* for this purpose *wood* furnished by such buildings as were demolished in opening the two streets "Avenue of the Opera" and the "Boulevard St. Germain." This wood was covered by coats of *paint*, varying in thickness.

By the action of the fire, the white lead found in the paint was converted into an impalpable powder of oxide of lead, which coated the floor of the oven.

After withdrawing the embers, and placing in the loaves of bread, this deposit coated the under surface of the loaves, and in this manner caused the first cases of poisoning which came under observation.

The carriers, male and female, who always brushed the under surfaces of the loaves when removed from the oven, detached quantities of the powder of oxide of lead, which they probably absorbed through their lungs as a poisonous dust contaminating the air.

This lead was afterwards carried by the bread to all those who supplied themselves from this baker.

We cannot compliment M. Ducamp too highly for his intelligent investigation of the subject, and the undoubted exposure of the exact source of this obscure disease, and it is especially important at this particular time, when many other bakers besides the accused used the same kind of fuel, on account of its cheapness, and might in this manner have propagated this disease to all quarters of Paris.

Nothing now is easier for the proper authorities to cut short this source of disease when the cause is so perfectly known.

We would observe, in conclusion, in these cases, and in many others of lead poisoning where the causes are obscure, a certain number of facts at first inexplicable, and frequently sources of error, have in the end furnished the strongest evidence in support of the result obtained. For example, in one of the cases cited a husband suffered severely from the poisoning, and his wife escaped entirely; further investigation established the fact that the man was in the habit of taking his breakfast every morning in a family who took their daily supply of bread from the baker under observation.

Another patient denied being supplied with bread from this particular baker, but further investigation proved that he had only recently changed, having for a long time been supplied with the poisonous bread.

Another case is reported, where a lady who suffered severely noticed that her maid escaped entirely. M. Ducamp discovered that this lady, who had excellent teeth, ate only the *crust* of the bread, while her maid ate the crumb.

In another family a mother and two children escaped entirely, while the father suffered severely; the former lived on meat and potatoes, eating no bread, while the latter was a great bread eater.

Again another instance: a boy, one of a family who suffered severely, escaped almost entirely; it was proved that he rarely if ever ate bread at his meals.

At the risk of being tedious, we have carefully chronicled the above cases, only to bring out in bold relief the many difficulties attending such investigations, and what excellent results might follow if the rigorous and scientific enquiry by M. Ducamp were employed by many other observers in analogous cases.

CORRESPONDENCE.

Dr. Polk and his Enemies.

[The following letter is published in conformity with Dr. Polk's request, and also, that we may assure our correspondents and readers that no member of our profession, however or wherever situated, shall be denied an opportunity to be heard in our

columns, whenever we may be accused of being the assailants. We have now answered all demands of justice or courtesy.

—EDITORS.]

Mr. Editor:—In reply to strictures on my professional character, in your issue of December, and republished from the *New York Hospital Gazette,* permit me to append the following affidavit to the charge of being an irregular physician.

PERSONALLY appeared before me, Dr. Charles G. Polk, of 2349 Catharine street, who, being duly sworn, deposeth:

That he is not the Professor of Surgery in the American University, Eclectic Medical College, or any other institution. That he is not in any manner whatever connected with either of the above institutions. That the chair of Surgery in the Eclectic Medical College was offered to and declined by him about eight months ago, and that since he has not filled or attempted to fill said Chair, nor did he ever deliver any valedictory address at the Commencement exercises of said institution, and never was present in his life at such exercises of the Eclectic Medical College or the American University.

He further deposeth:

That the use of his name in the announcement of said Eclectic Medical College is unauthorized and without his consent. That he is observing in every respect, to the best of his knowledge and belief, the Code of Ethics of the American Medical Association, and deporting him as becometh a member of the regular profession.

CHARLES G. POLK, M.D,
2349 Catharine street, Philadelphia, Pa.

Sworn and subscribed before me, this 4th day of December, 1877.

WM. B. COLLINS,
Magistrates Court No. 2.

As to the charges of plagiarism:

1st. The formula Hypophosphite of Olein and Glycerine (*Druggists' Circular*, March, 1865) can not be found anywhere else. It proved to be a failure. If Dr. Percy wishes the honor of being its author, I will not dispute him, as I have been ashamed of it.

2d. Next, the "Hypophosphite of Olein" (*Druggists' Circular*, October, 1876). In publishing a formula for this compound, I refer to an already published formula of Dr. Percy.

"Protogon" (*New Remedies*, November, 1876). I am charged with stealing this paper from Percy's Essay on Phosphorus, and

the circular surrounding his "Vitalized Phosphates, entered according to act of Congress, June 18th, 1874." Let us examine this charge. Dr. Percy says, on page 658 Transactions of the American Medical Association, 1872, Essay Phosphorus, that "although this nitrogenous hypophosphite has been isolated from the brain and nerves, it has never been formed in the laboratory, *nor has it ever* been used as a *therapeutical agent.*"

Dr. Percy does not give any formula in this Essay, or elsewhere, for isolating the phosphorous brain principles, and has never communicated to any journal any therapeutical experience with them. If in 1872 he had never used them, as he admits, and has not yet given evidence of having used them since, I can not see the right of his claim to priority. But he claims that in my Protagon paper (*New Remedies*, November, 1876), I embodied, as my conception, the circular surrounding his secret nostrum. This charge is ridiculous. This circular contains quotations from my Protagon paper, accredited to Dr. Polk. Now how is it possible that I could have stolen my Protagon paper from this circular, if the circular contained quotations from my paper? But this is in good keeping with Dr. Percy's other statements. Instead of trying to steal or imitate any production of Dr. Percy, I have just cause to complain of the attempt made by Dr. Percy to imitate my protagon in name, color, specific gravity, price, and dose, with the avowed purpose of driving mine out of market. Although his imitation has proved a failure, the spirit which prompted it is not less malicious.

The alleged motive of the attack by the *Hospital Gazette* was, that my paper, "Wheat Phosphates," was an advertisement. As I had given away the formula to Dr. H. E. Ashmead, and do not make or sell the preparation, the motive must be sought in a hatred on the part of the editors which no circumstance had prompted.

As the attack is largely a reiteration of Dr. Percy's malicious attack in *New Remedies*, April, 1877, it is evident that Dr. Sam'l R. Percy was the Mephistophiles behind the scenes who prompted the nefarious deed.

As to the cases reported in my article, "Tuberculosis," treated with "glycerite of kephaline," I will take pleasure in introducing any respectable and regular physician to the patients reported benefited, and give him every opportunity to hear the report from the patients and friends.

I ask for my views a candid and impartial examination. If I am mistaken, I wish to know it. I ask truth and justice, and no more.

C. G. Polk, M.D.,
2349 Catharine street, Philadelphia, Pa.

REVIEWS AND BOOK NOTICES.

Origin and Progress of Medical Jurisprudence, 1776–1876. *A Centennial Address.* By Stanford E. Chaillé, A.M., M.D., Professor of Physiology and Pathological Anatomy, Medical Department, University of Louisiana. Pp. 40.

This is a reprint from the "Transactions of the International Medical Congress," at Philadelphia, in 1876, for the benefit of the legal and medical professions of our country. Its scope, however, is by no means limited to this country, as it contains a sketch of the history of medical jurisprudence from its rise in Italy, in the early part of the seventeenth century, to the present time. In this respect alone the address is of high value, but its greatest use is found in the display of advantages which medicine has bestowed upon jurisprudence and the whole machinery of justice throughout the civilized world, and in the comparison presented between the state of legal medicine in our own and other countries. Our national pride has to abate somewhat of its usual proportions, at the plain picture of the sorry figure presented by legal medicine in our courts of justice and at our coroners' inquests. But when we consider that the cause of such deficiency lies in our form of goverment chiefly, springing from the bottom of the people, and not from its intelligence, the wonder should rather be that even moderate progress has been made.

Due credit is given to the works of a number of American authors, of which we have no reason to be ashamed.

It was our privilege to hear, in New Orleans, this address repeated before an audience of legal and medical men, remarkable rather for their intelligence and respectability, than for their numbers. The impression created was no ordinary one,

and such, we believe, will be the effect of a careful reading of the paper.

The pamphlet closes with several pages of bibliography, which will be found quite useful to any one desiring to investigate the subject farther.

Copies may be obtained by addressing R. G. Eyrich, Canal street, New Orleans. S. S. H.

EDITORIAL.

Vital Statistics.

The value of a uniform, accurate, and complete system of recording vital statistics, needs no demonstration with the readers of this JOURNAL. It has long been felt as a desideratum in Louisiana, which an old statute, providing for the optional registration of births and deaths at the office of parish recorders, has totally failed to accomplish. It is evident that a duty and obligation must be made to rest on certain individuals, else the matter is sure to be neglected by the great unthinking majority, and the extremely partial results then obtained are worthless. It is also evident, that a work of this kind can not be well done by men without a medical education; for it is not simply a clerical performance, but one requiring the constant exercise of such knowledge and judgment as only follow a special training, though any person of fair average intelligence may appreciate the results. Our readers, therefore, will be interested to know that the Legislature, at the present session, will be asked to provide for a registration of births, deaths and marriages throughout the State, and to place the details of the plan in the hands of local practitioners. As it is not contemplated to impose any burden on the public treasury, but to sustain all needed expense by moderate fees, it is clear that the success of the plan must depend upon the professional and scientific interest felt by medical men, whose reward will be found in the sense of duty discharged, but not duly appreciated by the public. This, however, is nothing new in the experience of our profession, and we should always be in readiness to render service for the advancement of knowledge, in which civilization and the public good are indissolubly involved.

Presuming that all our readers feel the desirability of such a

measure, and that most of them would be willing to promote it at some little pains, we take the liberty to suggest that they can do so effectually by a general effort through their Senators and Representatives in the Legislature. In matters affecting public health and sanitary science, people rely on their medical advisers, confident that no considerations of temporary gain or personal ease will be allowed to conflict in their minds with the permanent welfare of the population.

It is well to add, that the medical profession are represented by an unusual number of its ranks in the present Legislature, who can be fully relied on to sustain this measure. The opportunity is, therefore, peculiarly favorable, and we trust that our readers will not fail to take prompt advantage of it, in an endeavor to place Louisiana at the front rank of a work which lies at the very foundation of sanitary science.

Medical Certificates.

The President of the American Medical Association and the senior Editor of this JOURNAL have just been honored with communications, precisely identical both in language and in respect to the very modest request they contain. Our correspondent desires our professional opinions "as to its merits, of the following remedy (Creole Chill Tonic) for chills and fever, enlarged spleen, etc., and all diseases of a malarial origin." Then follows a rather complex formula, comprising numerous and quite reactionary chemical ingredients, which represents the interesting theme in regard to which we are asked to deliver opinions.

Was the writer of these letters in a thick psychological fog when they were penned, and therefore could not clearly apprehend what interpretation might be put upon his motives? Or did he hope to entrap us, especially the gentleman first referred to, into furnishing certificates to be affixed to a nostrum he is about to vend? If the latter suggestion is correct, he has most signally failed in his object. If the former is true, no light is likely to dispel the thick darkness surrounding him sufficiently to reveal the narrow but proper path to pursue—"illa diei ultimæ excepta."

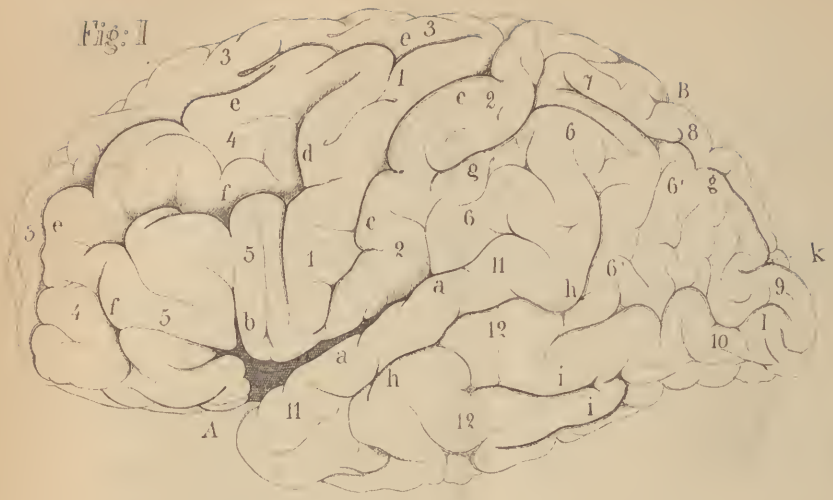
METEOROLOGICAL AND MORTALITY REPORTS.

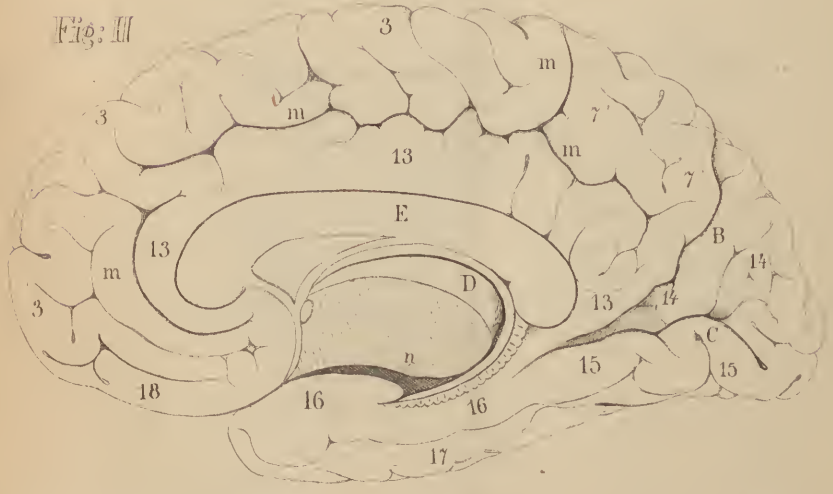
Meteorological Report for New Orleans—December.

Day of Month.	Temperature.			Mean Barometer Daily.	Relative Humidity—Daily.	Rain fall—inches
	Maximum,	Minimum.	Range.			
1	44	34	10	30.380	44.00	.00
2	46	34	12	30.411	46.00	.00
3	60	41	19	30.135	81.00	.45
4	66	59	7	29.905	89.00	.84
5	60	48	12	30.183	47.00	.05
6	50	40	10	30.478	40 00	.00
7	53	39	14	30.494	53.00	.00
8	55	38	17	30 422	53 00	.00
9	56	42	14	30.360	47.00	.00
10	64	44	17	30.391	66.00	.00
11	65	50	15	30.400	78.00	.00
12	65	47	18	30.314	77 00	.00
13	68	54	14	30.325	81.00	.00
14	65	56	9	30.312	74.00	.00
15	68	52	16	30.297	85.00	.00
16	68	55	13	30.266	87.00	.00
17	67	53	14	30.279	87.00	.00
18	70	55	15	30.196	86.00	.00
19	67	55	12	30.112	85.00	.00
20	64	61	3	29.956	88 00	.27
21	71	61	10	29.849	81.00	1.07
22	71	54	17	30.007	91.00	.00
23	69	62	7	29.913	94.00	.36
24	68	61	7	29.972	67.00	.08
25	68	57	11	29.967	58.00	.00
26	65	53	12	29.942	59.00	.00
27	62	53	9	29 939	71.00	.00
28	59	53	6	29.629	88.00	1.84
29	57	47	10	29.782	71.00	.00
30	49	44	5	30.027	64.00	.00
31	48	42	6	30.160	58.00	.00
						Total.
Mean..	61.13	49.80	11.64	30.255	70.00	4.96

Mortality in New Orleans from December 24th, 1877, to January 27th, 1878, inclusive.

Week Ending	Yellow Fever.	Malarial Fevers.	Consumption.	Small-Pox,	Pneumonia.	Total Mortality.
Dec. 30.....	0	3	11	1	4	75
Jan. 6.....	0	4	11	4	6	86
Jan. 13.....	0	1	18	0	5	114
Jan. 20.....	0	1	19	3	13	92
Jan. 27.....	0	5	17	6	9	111
Totals.....	0	14	76	14	37	478





Drawn from nature by the author.

THE

NEW ORLEANS

MEDICAL AND SURGICAL JOURNAL.

MARCH, 1878.

ORIGINAL COMMUNICATIONS.

OCCLUSION AND DILATATION OF LYMPH CHANNELS.

BY SAMUEL C. BUSEY, M.D., WASHINGTON, D. C.,

Professor of the Theory and Practice of Medicine, Medical Department of the University of Georgetown; one of the Physicians to the Children's Hospital; Physician to the Louise Home, etc., etc.

Continued from January No.

CHAPTER II—continued.

Perhaps the most interesting consideration connected with this relation of the lymph glands to the fluid passing through them, is presented by the anatomical arrangement of the chyle vessels and the mesenteric glands. The lacteals commencing as the central efferent vessels of the intestinal villi, pass between the folds of the mesentery, through several tiers of mesenteric glands, and, uniting into one or more trunks, terminate in the receptaculum chyli. Through these vessels the chyle flows. During digestion they are full of chyle, and during the intervals of digestion they convey lymph. The manner the fluid product of digestion reaches the central drainage tube of the villus has not been determined. Kölliker conjectured that it entered through minute pore-canals, and Brücke and Virchow suggest that the minute fat granules pass through the ciliated epithelial cells, and, perhaps, through the minute canals of the parenchyma (Heidenhain) formed by the connective tissue corpuscles, or through a network of anastomosing cells, into the central lacteal, where the regular current of the chyle begins. The central location of the incipent lacteal is sufficient indication (Reck-

linghausen) that the connective and other tissues of the villus, play a most important part in intestinal absorption.

The onward motion of the chyle towards the thoracic duct depends upon several agencies. Deriving its first impulse, perhaps, from the absorptive process—a function not unlike that performed by the rootlets of plants,* possessed by the epithelium and parenchyma of the villi—it is urged on by the contraction of the non-striated (Marshall) muscular fibres of the villi and of the fibres of the muscular coat of the intestinal mucous membrane. The lacteals possess muscular fibres in their coats, and the trabeculæ of the glands are rich (Recklinghausen) in smooth muscular fibres.† These factors, together with the peristalsis of the intestines, voluntary movements of the abdominal walls and compression from the descent of the diaphragm during inspiration, all unite in the production of the movement of the chyle. The larger lacteals are supplied with valves, both in the intestinal walls and in the mesentery. Consequently the course of the contained fluid is always in the same direction. To the forces enumerated is added, and perhaps not the least potential factor concerned in the locomotion of the chyle, the influence of the quick motion of the blood in the great veins, near the confluence of which the thoracic duct terminates.

Whatever may be the force or forces which drive the chyle into and through the parenchyma of the villi, it is difficult to comprehend how it can be transmitted along the current of fluid, interrupted by the several tiers of glands; nor can I regard them as the predominant and continuously acting influences engaged in the locomotion of the chyle; for they must cease to operate the moment the last fat granule enters the incipient lacteal, and the deep-seated lacteals, which alone contain the chyle, would never be empty of such contents, if the propulsive force was alone derived from the vis a tergo absorptive process. Every disturbance‡ which impedes the movement of the fatty particles into and through the parenchyma of the villus, or retards the current in the central drainage tube, causes the minute particles to unite into larger granules, and, possibly, into large drops of fat, which may be observed in the epithelial cells, or within the tissue of the villus, or may accumulate in large quan-

* Recklinghausen, loc. cit., p. 235.

† In many animals.—O. Heyfelder.

‡ Virchow– Cellular Pathology, p. 369.

tity in the bulbous dilatation of an occluded lacteal. Nowhere, says Virchow, has this condition been so strikingly witnessed as in cholera, to which Böhn called attention in 1837. This indicates nothing more, adds Virchow, "than an obstruction to the current of lymph in consequence of the disturbances in the respiration and circulation." This aggregation of fatty particles into fatty granules and drops can only take place in the villi and lacteals during the progress of digestion, and must necessarily arrest the further progress of absorption through the obstructed villi. It may, however, be only transitory—the fat accumulations being gradually absorbed upon the removal of the causative disturbances of the circulation and respiration, and the stream of chyle being restored, the function of the villi would be resumed. The special significance of the fact lies in the opportunity suggested for a more searching inquiry into the nature and causes of adipose* and chylous diarrhœa, diseases hitherto but imperfectly understood. To this inquiry I will recur.

The passage of chyle into the mesenteric glands induces a physiological irritation† of these bodies. They become enlarged, and for a time, the fat molecules are retained, but the channel always permits the passage of these minute bodies.* During this process a physiological leucocytosis takes place, and the quantity of colorless blood corpuscles is increased. It is more than probable that the new formation of white blood-cells in the mesenteric glands is second only, in quantity, to their production in the malpighian corpuscles of the spleen.‡ If, on the contrary, the tumefaction of the glands is produced by habitual catarrh of the appertaining surface of the mucous membrane and advances to suppuration; or becomes persistent, with increase and enlargement of the cell elements of the glands, as in scrofulosis; or, as in typhoid fever, if the glands become invaded with the "medullary infiltrate" (Rindfleisch); or undergo the cancerous or tuberculous degeneration, if the climax is attained, the lymph pas-

* The older authors attributed Diarrhœa Chylosa and Fluxus Cæliacus to some impediment in the absorbent system, whereby the chyle was left to escape with the fæces. This opinion has been recently re-asserted by Sir William Gull. He says "the normal absorption of fat is prevented from two causes; either from a defect in the digestion and emulsifying process, or from disease of the absorbent system."—Guy's Hospital Reports, vol. 1, third series, 1855, p. 369.

† Virchow, loc. cit., p. 224.

‡ Rindfleisch, pp. 202, 358.

sages may be permanently occluded or entirely obliterated. What are the mechanical or other effects of such changes in the structure of these glands? Unless the circulation of the chyle should be restored through the network of anastomosing lymphatic vessels, the body must suffer from innutrition;* and it is an indubitable fact, that inanition and emaciation are the invariable concomitants of tabes mesenterica, resulting both from diminished tissue repair and from increased tissue waste. Even admitting the restoration of the communication between the lacteals and the central trunks, through dilated anastomosing connections, the chyle, in such event, could not, probably, be submitted to the necessary and intermediate preparation and elaboration of the glandular apparatus, and, consequently, though supplied to the blood in sufficient quantity, it would be wanting in essential nutritive elements.

In the absence of sufficient and correct observations, it is not possible to establish any constant and direct connection between the appetite and the interruption of the natural course of the chyle, because of the impediment to its passage through devastated mesenteric glands. Sir Astley Cooper has incorrectly asserted that it is always voracious,† while, in fact, it lacks any uniform rule; sometimes diminished, sometimes variable, and again voracious, even in the same patient; and is uniformly associated with progressive emaciation, not unusually with hectic, and more frequently with gastro-intestinal disorder, with white and chalky stools, or stools containing crude and but partially digested aliment and the morbid secretions which attend inflammation of the mucous membrane. A morbid condition, involving a portion or all of the mesenteric glands, either partially or completely destroying‡ their peculiar function of forming and elaborating the cell elements of the chyle, so constantly associated with persistent inanition, progressive emaciation, increased peris-

* Soemmerring (loc. cit., p. 48) refers to the observation of Assalini, in "obstruction of these mesenteric glands and impediment to the flow through the thoracic duct, the chyle has been noticed to pass to those vessels which communicate with the absorbents of the liver; hence these hepatic absorbents are found filled with chyle which pass to the right superior roots of the posterior thoracic duct, the inferior part of the thoracic duct being obstructed."

† Loc cit., p. 115.

‡ Diemerbroeck observed in atrophy the mesenteric glands swollen and filled with cheesy chyle.—Soemmerring, loc. cit., p. 48.

De Haen has seen a hydatid tumor of the mesentery and cartilaginous formations weighing 30 pounds.—Rationis Medendi Tomo Septimo.

talsis, hectic fever, a variable appetite, a strumous diathesis, and terminating, with rare exceptions,* in death, cannot fail to impress one with the conviction that the aliment, perhaps ingested in sufficient quantities, is neither assimilated, nor assimilable, because of the impediment to its normal course, through the several tiers of lymphatic glands.

Now, to return to the consideration of the agency, which impediment to the absorption of chyle by the lacteals, and to its flow through its proper channels, may exercise in producing either diarrhœa, adiposa, or chylosa. In the proper and complete digestion of the fats, three factors are probably concerned; the bile,† and the pancreatic,‡ and intestinal§ juices. In view of this fact, diseases of the liver,‖ not necessarily malignant, and cancer‖ of the pancreas—more especially when implicating the duodenum—which are, not unfrequently, associated with the discharge of fatty concretions from the bowels, have been regarded as the causes, either separate or conjoint, of such fatty evacuations, because of the imperfect or irregular admixture of the biliary and pancreatic or other secretions, to which, perhaps, may be added a perverted and impeded action of the duodenum. This explanation is, however, incomplete, in that, but in a small proportion of the cases (3 to 37 of Da Costa's collection¶) of cancer of the pancreas were fatty stools present, and a number of the cases of adipose diarrhœa†† are unassociated with any recognized affection either of the liver or pancreas, and a limited number‡‡ are restored to health,§§ which fact excludes

* A possibility of complete resolution of cheesy material has been described by Virchow. Vide Rindfleisch, loc. cit., p. 202.

† Flint, loc. cit., p. 372, vol. 2. Busch—Vir. Arch., vol. xiv., 1858. Amer. Jour. Med. Sci., vol. xxxvii., p, 535, and vol, xl,, p. 217.

‡ Flint, loc. cit., p. 341. Bernard—Mémoire sur le Pancréas, Paris, 1856, pp. 46, 47.

§ Flint, 327. Busch, loc. cit.

‖ Griscom—Trans. Amer. Med. Ass. vol. 14, p. 173. Da Costa—Trans. Path. Soc. Phil., vol. i., p. 109. Bright—Med. Chi. Trans., vol. 18, p. 1. Lloyd, ibid. p. 55. Elliotson, ibid. p. 65. Flint—Practice of Medicine, 3d ed., p. 440. Dunglisson—Clyc. Prac. Med,, vol. 1, p. 642. Watson—Practice of Physic, 3d Amer. ed., p. 822. Aitken—Sci. and Prac. of Med., vol. ii., p. 874, 2d Amer. ed. Good—Study of Medicine, 6th Amer. ed., vol. i,, p. 133.

¶ Loc. cit.

†† Griscom, loc. cit.

‡‡ Ibid.

§§ Of the 25 cases collected by Griscom, 14 died, 8 recovered, and in 3 result not noted. Watson—Loc. cit., p. 823. Bright, Lloyd, Elliotson, Flint and

even the hypothesis of the co-existence of any malignant disease of any of the organs immediately concerned in the digestion and absorption of fats. To extend this inquiry and complete the chain of causes of this rare and curious disorder, I must accept the opinion of Sir William Gull, that the normal absorption of fatty matter is prevented "from a defect in the digestive and emulsifying process, or from disease of the absorbent system." I need hardly pause to discuss the first clause of the proposition, that fatty diarrhœa may result from the imperfect digestion and emulsification of fats, for it is a conceded and accepted conclusion. This admission is a concession, at once, of the important rôle played by the absorbents; for if the defective preparation of the chyle unfits it for acceptance and conveyance to the hungered and wasting tissues, of none the less evil import must be such morbid alterations of the ducts and glands as may obstruct its transmission and prevent its complete elaboration.* The issue, however, is one of fact, and cannot be predicated upon the presence of adipose diarrhœa in cases of disease of the mesenteric glands co-existing with cancer of the liver and spleen, for in such cases the causative relationship of the mesenteric disease cannot be established. The universality of cancer of the pancreas, as a cause, is excluded by the facts that adipose evacuations only occurred in three of Da Costa's collection of cases (37 cases) of cancer of the pancreas; and in only 8 of the 14 fatal cases of Griscom's collection of 25 cases of adipose diarrhœa was cancer of the pancreas found, and 8 cases "recovered entirely," or were so far improved as to experience no inconvenience from the symptoms. Diseases of the liver are likewise excluded by the uniformity of hepatic complication in cases of cancer of the pancreas, and by the absence of any such complication in a limited

Bernard. Of these 25 cases, 11 had jaundice or other hepatic complication; of the 8 recovered, 2 were jaundiced; 8 had cancer of the pancreas, 6 of whom had some hepatic complication. In 12 no mention is made of either jaundice, hepatic or pancreatic disease, of which 6 recovered. Of the 8 recoveries 2 had jaundice, 1 violent hepatic pain, 1 followed dysentery, 1 recovered entirely and died 14 months after from emaciation, but without return of the fatty discharges, pancreas extensively diseased; 1 had shortness of breath and palpitation, with stools deficient in bile; 3 had pain in stomach or abdomen.

* In two of Bright's cases of fatty diarrhœa, the pancreas and neighboring mesenteric glands were alike cancerous, and in the cases of cancer of the pancreas reported by Battersby, Crompton, Lessier, Antrum, Haldane and Bennet, the mesenteric glands were involved.

number of cases of fatty diarrhœa.* It has, however, been established by the experiments of Bidder, and Schmidt, and of Flint,† that complete diversion of the bile from the intestines diminishes the proportion of fat in the chyle and increases it in the fœces. It is, furthermore, true that animals experimented upon by the diversion of the bile through biliary fistulæ frequently have a distaste for and sometimes absolutely refuse fatty articles of food, even when very hungry (Flint), and take lean meat with great avidity.

Clinical and experimental observations sufficiently establish the fact, that under certain circumstances concomitant diseases of the liver, pancreas and duodenum, may hold a causal connection with adipose diarrhœa, through incomplete emulsification of the fatty portion of the ingesta, thus unfitting it for absorption. The fat may escape from the bowels either in the form of concretions or commingled with the excrementitious product.

It cannot, however, be so conclusively proven that similar evacuations may result from impairment of the function and devastation of the structure of the mesenteric glands, or from occlusion of the chyliferous vessels, yet clinical and post-mortem observations, though meagre, are not without significance. That total obstruction to the course of the chyle may not necessarily follow very great enlargement of the mesenteric glands must be admitted, yet Cruikshank‡ admits that "children and grown persons may have died of such obstruction, from turgescence of the glands, and others have maintained that such alteration of the gland structures may take place as would arrest the progress of the solid parts of the chyle, while permitting (see Scherb's case) the passage of the liquid portion.§ In Sandifort's

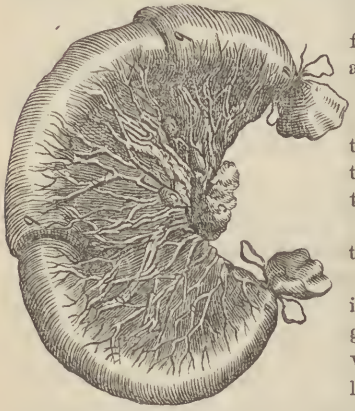
*Fleische claims to have proven that lymph may leave the liver through vessels communicating with the lymphatics of the diaphragm, and when the natural outlets of the bile are occluded, it may pass through these channels and through the thoracic duct into the blood. He also claims, that by occluding both the bile outlets and thoracic duct no bile acids will be found in the blood, but the fluid contents of the thoracic duct will contain them.—Monthly Abs. Med. Sci., vol. ii., p. 49.

† Loc. cit., vol. ii., pp. 372–373.

‡ Anatomy of the Absorbing Vessels, Part 1st, p. 115.

§ Morgagni and Hunter believed that in old people the glands of the mesentery became obliterated, and Ruysch contended that in the latter part of his life he lived without lacteals, and that generally old people do the same.—Good's Study of Medicine, vol. i., p. 229.

case* the glands with difficulty transmitted the chyle—the thicker portion was detained in the first part of the lacteals, which rendered them very conspicuous. Andral found in the cadaver of a phthisical patient† the lacteals, corresponding to the situation of an ulceration of the intestinal mucous membrane; remarkably white, and so dilated at intervals as to resemble a string of rounded nodules. Soemmerring‡ refers to specimens, in his possession, of lacteal vessels enormously distended "with a certain milky material, thicker, however, and somewhat softer than cheese," and insists (page 42) that such conditions may result from occlusion of the chyle vessels by pressure, and from obstruction of the glands with which the vessels communicate. In the cadaver of a woman dying from continued fever, there was found by Fontana,§ "20 hours after death, obstruction of the liver, pancreas, spleen, mesenteric glands with some veins of the first order, apparently on account of the detention of the chyle." Lieberkühn|| observed in a cadaver with disease of the lungs (the patient having been abundantly supplied with milk previous to death) the lacteal vessels filled with a cheesy material, and larger than the arteries not only in the mesentery, but also in the coats of the intestines. In Poncy's case, the chylous fluid so frequently evacuated from the peritoneal cavity was diverted from its proper course by occluded lacteals and devastated mesenteric glands. In Hughes' case¶ the abdominal fluid, which



* "A portion of the ileum from an infant a few weeks old, with a double intussusception and very much enlarged lacteal vessels.

a a Portion of the ileum.

b b A double intussusception, thus formed that the superior part of the intestine enters the inferior, the inferior part of the constriction embraced the entire superior part.

c c c The larger glands, lesser distributed through the mesentery.

d d d d The lacteal vessels arising from the intestines and running to the mesenteric glands, with their arteries and accompanying veins."—Observationes Anatomico; Pathologicæ, p. 156, Fig. v., Tab. viii., 1776.

† Cyclopedia of Anatomy and Physiology, vol. iii., p. 233.

‡ Loc. cit., p. 43.

§ Dissert. Anat., p. 176, 1745.

|| Cyclo. Anat. and Physiology.

¶ Guy's Hosp. Rep's., vol. vi., 1841, p. 297.

Dr. G. Owen Rees, after a very careful examination, pronounced to be chyle mixed with a serous secretion, must have escaped into the peritoneal cavity through the ruptured orifice of some of the numerous lacteals, which were found on dissection, in all parts of the mesentery, "large, tortuous, varicose and distended, some with a milky and others with a serous fluid." In this case the obstruction to the onward flow of the chyle resulted from the pressure of a tumor consisting of several devastated and agglomerated mesenteric glands, from which exuded, upon very slight pressure, "a white cream-like fluid;" and in Ormerod's* case, the milky fluid, which was evacuated from the peritoneal cavity to the amount of 76 pints in five tappings performed during the two month' stay of the patient in the hospital, was declared by Dr. W. Marcet and M. O. Salter to be chyle, which had reached the cavity through chyle vessels, ruptured in consequence of the interruption of the current of the fluid, produced by the plugging of the left subclavian vein and its affluent vessels with a long standing blood-clot, and by the pressure of a tumor upon the left innominate vein. Dr. Wilks† says "obstructions of the lacteals were not unfrequently met with in persons who had died of cancerous or tuberculous disease of the mesentery, sometimes were distinct cysts holding chyle which easily rupture on pressure."

Accepting the above citations as illustrating the possible occurrence of such morbid alterations of the absorbent vessels and glands as would occasion detention of the chyle (at least in part) or of its solid portion, either in the lacteals themselves or in the intestines, it does not appear irrational to conclude that such detained parts might be discharged from the bowels, either in the form of fatty concretions, or in a state of partial emulsification and commingled to a greater or less extent with the intestinal secretions and the excrementitious product. Fortunately, however, a priori reasoning is verified by clinical observations. Surely the case related by Sir Everhard Home (one of Babington's cases), of oily discharges, occurring in a girl three years old, who had a good appetite and firm flesh, but a tumid belly, and in whom the affection recurred every ten or fourteen days, the stools sometimes consisting of pure oil and sometimes oil mixed with the fœces, which continued for eighteen months,

* Trans. Path. Soc. London, vol. xix., p. 199, 1863.

† Ibid. 201.

terminating, probably, in recovery, points to some temporary and partial interruption of the digestive or absorptive processes. In the latter event, probably attributable to disease of some of the mesenteric glands. In Church's case of lymphoma of the mesentery, "the large intestines contained a large quantity of pale clay-colored fœces." "When the fœcal matter was broken up, and mixed with water, a large quantity of oleaginous or fatty matter floated on the top of the water."* But the case of fatty stools from disease of the mesenteric glands, reported by Mr. Hall,† is more conclusive. This case may, perhaps, be an extreme

* In this case the mesentery was immensely thickened, forming an elongated mass extending down to the bifurcation of the aorta, which consisted of adipose tissue, and an adventitious growth composed of lymph corpuscles, connective-tissue and an intermediate layer of granulations between the masses of new growth. The pancreas was partially atrophied and the bile ducts dilated, with thickened walls, but pervious.—Trans. Path. Soc. London, vol xx., 1869, p. 375.

† "Henry Orton, æt. 13, a delicate child, with light hair and fair complexion, came under treatment June 8, 1855. He had been losing strength and gradually emaciating since the beginning of the year, and now presented the appearance of advanced mesenteric disease. Pulse 100, small and feeble; tongue glazed and red; appetite very great; stools loose, and of light color; urine pale, without albumen; frequent cough without expectoration; dulness on percussion below the left scapula, with gurgling and pectoriloquy. In the left infra-mammary region the breathing defective; at other parts puerile. The abdomen distended with flatus, and enlarged mesenteric glands can be felt in the umbilical and hypogastric regions. The bowels were generally moved three times in twenty-four hours. The evacuations were pultaceous or liquid, of a dull chalky color, frothing like soap when a stream of water was poured on them. Under the microscope they were seen to contain muscular fibre in different stages of disintegration, starch cells, etc., and finely divided oily and granular matter like chyle, and inflammatory exudation. Shaken with ether, a large amount of fat separated. The cod liver oil administered was readily obtained from the evacuations, so as to be recognized by its color and odor, after being exposed to the air and losing the fœcal smell. The appetite was voracious. The emaciation was extreme. Died July 15th.

"*Sectio Cadaveris.*- -In the left chest twelve ounces of sero-purulent effusion. The lung adherent to the ribs at base of the upper lobe, the free surface covered with a thick layer of rather recent fibrinous exudation. In the compressed lung, at the lower part, several vomicæ, one as large as a pigeon's egg; at the left apex two smaller ones. The right lung crepitant, but congested; near the apex a small vomica. Heart normal in structure, but extremely wasted. The mesenteric glands enlarged, and universally affected with strumous disease. The intestinal mucous membrane, from the commencement of the jejunum to the rectum, dotted over with patches of ulceration, with here and there prominent masses of strumous deposit under the surface. The appendix vermiformis was ulcerated through, and the two portions adherent to the cæcum. Pancreas and duodenum

one, but is none the less valuable for the purpose of illustrating conditions which may exist in a much less degree. The frequency of tubercular degeneration of the mesenteric glands, and its not infrequent co-existence with similar deposits in the lungs, organs which lie directly in the course of the nutritive material, points to the defective (Gull) constitution of the chyle (a view insisted upon by Bennett), and its imperfect absorption and assimilation, as a significant factor in developing the predisposition, and in promoting and accelerating the morbid process; and it is not improbable that the proverbial dislike, not unfrequently amounting to loathing, of the tuberculous for the fatty aliments, sometimes distinctly manifested prior to the recognized localization of the disease, may be nature's expression of the inadequacy of the organs concerned in the absorption and preparation of such material, to completely discharge their requisite functions.

Diarrhœa chylosa is, perhaps, a misnomer, if interpreted to express, as seems to have been intended by the older authors, the discharge through the anus of a fluid identical with chyle, and similar in chemical and physical properties to the fluid which has in occasional cases found exit into the peritoneal cavity. Chyle cannot exist in the intestines independently of excrementitious matter, and it cannot be probable that it would escape per anum unmixed with such product, imparting, at most, to the excrement a chylous nature. However inaccurate the nosology of Cullen,* Hasse,† Mascagni,‡ Baillie,§ Kanilfeld,|| and Good,¶

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healthy. Liver and kidneys healthy."—Guy's Hospital Report, vol. i., 3d series, 1855, p. 371.

* "An intestinal diarrhœa in which a milky tumor, having the appearance of chyle, is evacuated."

† "Derived Fluxus Cœliacus from a hindered resorption of chyle."—Soemmerring, loc. cit., p. 152.

‡ Observed "in tabes the absorbent vessels and structure of the glands corrugated and narrowed very much, with a decrease, especially of the mesenteric glands."—Loc. cit., p. 34.

§ Diarrhœa Gypsata.

|| "In fluxus cœliacus, the alvine evacuations are made up of liquids mingled with chyle—the true cause of which is to be found in the obstructed lacteal vessels, or in the defective absorption of bile, or of the pancreatic juice. For the chyle is not sufficiently diluted, or there is a vice in the intestines or in the lacteal vessels, which have lost the power of absorption, or being shut by cicatrices, obstructed or compressed, they prevent the passage of chyle."—Institutio Med. Prac., vol. 4 parte altera, Cap. quinto, p. 332, Lipseæ 1790.

¶ Diarrhœa Alba.

and probably they often mistook inflammatory exudation for chyle, yet their conception of the possibility of chyle remaining unabsorbed, because of some impediment in the absorbent system (the view accepted by Sir William Gull), and escaping with the fœces, must be held as correct in logic and true in fact. Recent authors following the teachings of Vogel, Rummel,* and, more recently, Graus,† deny this possibility—the latter partially accepting the opinion of Richtero,‡ insists that the milk-like stools are puriform, consequent upon a blenorrhagia of the rectum. Under the most favorable conditions, in perfectly healthy persons, there must be a limit to the digestion and absorption of fat, the excess ingested must pass from the bowels. This limit is frequently narrowed by functional derangements and organic changes of the organs secreting the digestive fluid, and by diseases of the intestinal mucous membrane. In chronic diarrhœas the mesenteric glands are generally enlarged and indurated, and especially has this condition of the glands been observed in cases accompanied with white flux, in which, frequently, notwithstanding the protracted duration of the disease, there is little or no change to be found in the mucous surface. There is thinness of all the coats of the small intestines, so that they are quite translucent.

The writer has observed a number of cases of protracted diarrhœa in children, accompanied with extreme emaciation, notwithstanding the appetite was good, sometimes even voracious, and the food taken was ample in quantity, nutritious, and easily digested, in which the stools, varying from two or three to twice as many daily, were whitish, leaden or slate colored, and varying in consistence, sometimes semi-fluid, at other times containing lumps or masses of putty-like consistence, presenting to the naked eye a greasy appearance and to the touch a fatty feel, and at the post mortem has found the lesion, and none others, de-

* Soemmerring, p. 153, quoted from Academicæ Prælectiones de cognoscendis et curandis præcipuis corporis humani affectibus. Gotlingal, 1772, 8 L. 339 et 340.

† Dublin Hospital Reports, vol. iv., p. 66.

‡ "Rectius hinc, si Fluxus cœliacus definitur; Excreto alvina puriformis vel chyliformis, cum tenesmo, febra lenta, et consumtione, cum Richtero, Chirurgo inter Gramanos Celeberimo, Fluxum Cœliacum pro morbo topico intestini recti haberem, materiamgere excretam minime chylum venum, sed tantum mucum puriformem esse, hinc rectius morbum dicendum esse Fluorem album Intestine sich."—Soemmerring, p. 155.

scribed by Goodeve.* In such cases medication is futile, and unless life be prolonged by nutrient liquids and such aliments as may be absorbed independently of the lacteal system, or through the partially obstructed mesenteric glands, death takes place from systemic starvation. In many cases the flickering spark of life, the failing, and increasing emaciation and exhaustion, threatening daily and hourly to terminate life, survive the slow but gradual process of resolution taking place in the glands, and soon the starving child begins to recuperate.

Here I must conclude this discussion, deferring for future consideration other questions relating to the locomotion of the lymph.

OBSERVATIONS ON THE AFRICAN YAWS (FRAMBŒSIA, RUBULA, PIAN, EPIAN, SYPHILIS ÆTHIOPICA, SYPHILIS VEL LUES ÆTHIOPICA, SYPHILIS AFRICANA); AND ON LEPROSY (LEPRA TUBERCULOSA, LEPRA HÆBRÆORUM, LEPRA ÆGYPTICA, LEPRA LEONTINA, LEPRA ARABIUM) IN INSULAR AND CONTINENTAL AMERICA.

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(Extract from Proceedings of New Orleans Medical and Surgical Association.)

At a meeting of the New Orleans Medical and Surgical Association, held October 27th, 1877, Dr. Joseph Jones presented the following case of Yaws, with the accompanying observations upon the history of this disease in the West Indies and Southern States, together with certain facts establishing the existence of Leprosy in Louisiana, during the French and Spanish domination, and at the present time.

Case of Yaws. Augustin Fainé, aged 22 years; 5 feet 7 inches in height; weighs about 150 lbs.; black hair; dark eyes; copper-colored skin; in the color of the skin and his straight black hair, resembles more nearly the Mongolian race; native of the Isle of Bourbon, off the coast of Africa.

The patient states that his father was a native of France and

* Reynolds' System of Medicine, vol. i., p. 656.

his mother a native of Africa. Sailor by occupation. Admitted to Charity Hospital, ward 30, bed 440, October 1877. The patient states that he contracted the disease with which he is now suffering, on the the coast of Africa three months ago. He says that the ship upon which he was employed was visited by natives, several of whom were suffering with a similar disease, and he supposed that the disease was contracted from them. Had lived on the Island of Bourbon until thirteen years of age, and from that time until his admission into the Charity Hospital has followed the seas, and ten months ago suffered with scurvy, his gums being swollen and livid, and the surface of the body mottled with purpuric spots. He states that the yaws first made its appearance on the face in the form of two or three vesicles, about the size of a pin's head, which gradually enlarged to the size of a pea. The number of the vesicles increased, several of which united or became confluent on the face, forming irregular elevations about an inch in diameter. In ten or twelve days after their first appearance, each vesicle became umbilicated and burst, discharging sanious fluid, and then drying up, formed scabs, which gradually fell off. In the meantime other vesicles formed upon the face and extremities. After the eruption had continued about six weeks, any abrasion of the skin upon any part of the body would result in the formation of raw suppurating sores, upon which scabs would form. The disease attacked with greatest violence the soles of the feet, toes and fingers, causing swelling, ulceration and destruction of the joints and phalanges. The patient states that he came on a sailing ship from Havre, France, to New Orleans, and suffered severely with pains in his head, back and extremities, attended with high fever and delirium, which continued throughout the voyage. Entered the Charity Hospital in a prostrated and almost insensible condition.

When I first saw this patient he complained of severe pain in the head, defective vision and memory, insomnia, and pains in the limbs and back. Body emits an exceedingly offensive and disgusting odor. An eruption of raised pustules, of various sizes and ages; varying from the size of a pin's head to the size of a half dollar, and filled with an opaque whitish fluid, occupy various portions of the face and forehead, and trunk. Marks of the successive crops of eruptions can be discerned upon the face, and upon various portions of the trunk and extremities. When the

pustules burst, a thick viscid matter is discharged, which forms a foul, dense crust or scab upon the surface. From some of the pustules, and especially those upon portions of the body most subjected to pressure and abrasion, as the hips, elbows, knees and feet, red fungous excrescenses have arisen, resembling a large mulberry, and emitting a foul, disgusting odor. On the right cheek, over the region of the malar bone, there is an aggregation or confluent mass of these eruptions forming an elevated fungus surface of irregular shape, varying from one to two inches in diameter. On the left side of the angle of the inferior maxillary, there is another irregular mass of pustules or fungus formation, which are covered with a scab of the dead exudation. About twenty of the pustules, of various sizes, occupy the forehead. The right eyelid presents a nodulated appearance, and the left eyelid has three small pustules. Both elbows are occupied by oblong fungus, mulberry-like eruptions, discharging foul sanies; and a similar eruption is observed over both trochanters and both knees. Upon the left side numerous cicatrices, marking the site of former eruptions, are visible. This observation applies also to other portions of the body. The scrotum and integuments of the penis much swollen, and very painful. No chancres nor chancroids, nor marks of syphilitic ulcerations, observable upon penis. No induration or enlargement of the lymphatics of the groin or axilla are observable.

Fungous eruptions exist upon the joints of several of the fingers, some of which have lost the first joint, and the nails are partially or entirely missing. Several of the fingers are retracted. The toes of the left foot are retracted and deformed, and several are without nails, having lost the first phalanx. The external surface of the left ankle is covered by a fungous nodulated eruption. The right leg, ankle and foot is much swollen, and presents somewhat the appearance of elephantiasis; but the enlargement of the limb is clearly due to the effects of inflammatory action, in and around the bones of the instep and foot. A large corroding ulcer, discharging an offensive sanious fluid, exists on the posterior surface or palmar aspect of the right foot, about three inches in diameter. On the dorsal aspect of the foot there are several ulcers, resembling those formed over carious bones, which discharge a foul sanious fluid. These ulcerations communicate with the dead bones of the foot, and it appears that the continuous discharge is due to the presence of the dead bones,

which act like foreign bodies. The outer or smallest toe, as well as the next toe, have been completely destroyed. The disease has also invaded the remaining toes, and the third toe from the exterior lost one of the phalanges, after the entrance of the patient into my wards; and upon careful examination, I could discover no erosions of the surface of the bone, as in the sequestra of diseased bones and those segments thrown off after amputation of the extremities.

The increase in the size of the left foot and leg is shown by the following measurements: circumference of ankle, 13½ inches; circumference of instep, 14 inches.*

Yaws in the West Indies.

The existence of yaws in the West Indies was, without doubt, coeval with the importation of slaves from the coast of Africa, but the first English writer who observed and described the disease in the West Indies, was the learned physician and natura-

* *Progress of this Case.* Up to this date, January 23d, 1878, the patient has presented various changes, in accordance with the phases of the disease, but upon the whole has improved upon the plan of treatment instituted. The appearance of fresh crops of pustules has been attended with pain in the head and back, and extremities, anorexia, depression of spirits, moaning insomnia, and febrile excitement. Opium was administered to induce sleep, and iodide of potassium and tincture of iodine administered to induce some constitutional impression on the disease. After a fair trial these remedies were abandoned, and the patient placed upon bitart. of potassa ʒij., three times a day in cup of water, and 15 drops of the tincture sesquichloride of iron three times a day in wineglassful of water. Gentle purgation, combined with the tonic action of the tincture of iron, and daily use of warm baths, and local applications of carbolic and iodine salves, yielded the best results. At this present moment all the ulcers are healed, except the large ones on the right foot, and the pustules have ceased to form, and the patient is cheerful and walks about the hospital grounds. As a local application the following was found beneficial. ℞—Acidi carbolici, ʒi.; acidi tannici, ʒij.; tinct. iodinii, fʒiij.; tinct. opii, fʒij.; cerati simplicis, ℥ij; mix, apply locally to abraded surfaces with fungous growths, and to the corroding phagadenic ulcerations of the extremities. This ointment was spread upon soft prepared or English lint, and applied continuously to the ulcerated surfaces. Under this treatment, conjoined with frequent ablutions in warm water, the ulcerations and fungous surfaces have healed, and the patient is able to walk about the hospital grounds. About the middle of December, one of the phalanges of the middle toe was extracted. It presented no erosions. Since its removal, the swelling of the foot has progressively subsided. I have used the above ointment, or one of similar composition, since 1866, with satisfactory results in the treatment of gunshot wounds, and ulcerations resulting from various causes.

list, Hans Sloane, M.D., who, in 1687, went as physician to the Duke of Albemarle to Jamaica.

The great work of Dr. Hans Sloane, on the Natural History of Jamaica, was published in London in 1707. From that portion of the Introduction which relates to the diseases which he observed in Jamaica, and the method by which he "used to cure them," we extract the following observations relating to the yaws. "A negro woman, belonging to Mr. Firwood, was brought to me. She had a great many ulcers in the extremities of the fingers and toes, and about the joints. There was also several bladders filled with serum on several of her joints, as if cantharides had been applied there to raise a blister. These bladders or *cuticula*, filled with serous matter, came on either her fingers or toes every full and new moon, and in process of time each of the bladders brought an ulcer, leaving the flesh raw, and sometimes deeper, sometimes shallower corroded, so that the longer the bladders had been raised, the deeper were the ulcerations. The virulency of the humour was such, as that after it had eaten into the bone, the fingers and toes would drop off, and they die, as I have been assured by those who had lost several negroes of this disease, I was assured was peculiar to blacks." * * *

"A *negro* lusty fellow was taken ill of the *yaws*; he had not been long from *Guinea*, and was all broke out into hard whitish swellings, some greater, some lesser, from the bigness of a bean to that of a pin's head, of which last size there were many which appeared like the glands of the skin, swelled and white. When these tumors are large, they are usually white at top, from some of the cuticula and humors, dried, lying in scales over it, and sometimes they weep out an ichor. At other times the ulcers are much larger. They likewise complained sometime of great pain in the bones, and the fellow whom I cured was broke out very much about the penis, scrotum and elbows. I fluxed him by unction in an outhouse, feeding him with as much water-gruel as he could eat or drink. The flux proceeding as it was expected to do, he was quite cleared of this filthy distemper, only on his elbow he had one swelling, not quite dry, to which I applied vitriol, which made the scales fall off and heal as the rest.

"This distemper is thought to be contagious, and to be communicated from one to another, from blacks to whites, and from parents to children, but I couldn't observe it to be more or less contagious than the pox. There are few plantations without

several of these diseased persons, who are usually cured as above. Though 'tis commonly thought that fluxing does not cure without relapse, yet I, by what I could observe, find it does, and do believe the return of this disease comes from not being thoroughly fluxed by anointing, or being kept too warm, or wrong treated afterwards, whence some remains of it staying behind in the body, these dregs by degrees bring the same distemper again. * * Some sorts of this distemper seem to me to be the *elephantiasis* or true *leprosie* of the ancient and *Arabian* physicians. Others said to have this disease were plainly *scrofulous,* or had the king's evil, and most said to have it had the *lues venera.* Though this disease is thought to be propagated by ordinary conversation, or trampling with the bare feet on the spittle of those affected with it, yet it is most certain that it is mostly communicated to one another by copulation, as some other contagious diseases are."*

Dr. John Hume, Surgeon to the Naval Hospital in Jamaica, and a commissioner of the sick and hurt, drew the attention of British practitioners to the phenomena of this disease in an account of it published in the sixth volume of the Edinburgh Medical Essays, in 1744. Dr. Hume pointed out the resemblance of the yaws to the disease described in the thirteenth chapter of Leviticus, as affecting the Israelites in their passage through the wilderness, and Adams has expressed his belief of their identity (Obs. on Morbid Poisons, page 206). Dr. Hillary supposes that Haly Abbas, who lived in the tenth century, refers to the yaws under the general term *lepra*, both kinds of the Arabian leprosy having been described in a preceding chapter under the name (as it is translated) *elephantia.*—(Inquiry into the Means of Improving Medical Knowledge, by W. Hillary, M.D.) The yaws were next treated of by M. Virgile, who practised for several years in the Island of St. Domingo, and subsequently by M. Desportes, Peryrilhe, Dr. James Grainger, of St. Christophers, Dr. Hillary, of Barbadoes, Abbé Raynal, Bryan Edwards, Drs. Winterbottom, Dancer, Mosely, Ludford, Thomson, Thomas, Wright, and others.

* A Voyage to the Islands of Madeira, Barbadoes, Nieves, St. Christophers, and Jamaica, with the Natural History of the Herbs and two and four-footed Beasts, Fishes, Birds, Insects, Reptiles, etc., of the last of these Islands, etc. Illustrated with Figures of the things described as big as Life. By Hans Sloane, M.D., Fellow of the College of Physicians and Surgeons, and Secretary of the Royal Society. 2 vols., London, 1707. Vol. 1, Introduction, cvi., cxxvi.

Abbé Raynal, in his *Philosophical and Political History of the Settlements and Trade of the Europeans in the East and West Indies*, vol. v., pp. 272–274, says: "The yaws, which is the second disorder peculiar to negroes, and which accompanies them from Africa to America, is contracted in the birth, or by communication between the sexes. No age is free from it, but it more particularly attacks at the period of infancy and youth. Old people have seldom strength sufficient to support the long and virulent treatment which it requires.

"There are said to be four species of yaws: the yaws with pustules, large and small, as in the small-pox; that which resembles lentils; and lastly, the red yaws, which is the most dangerous of all.

"The yaws attack every part of the body, but more especially the face. It manifests itself in granulated red spots, resembling a raspberry. These spots degenerate into sordid ulcers, and the disorder at length affects the bones. It is not in general attended with much sensibility.

"Fevers seldom attack the persons who are affected with the yaws; they eat and drink as usual, but they have an almost insuperable aversion for every kind of motion, without which, however, no cure can be expected. The eruption lasts about three months * * All the negroes, as well male as female, who come from Guinea, or are born in the islands, have the yaws once in their lives. It is a disease they must necessarily pass through; but there is no instance of any of them being attacked with it a second time, after having been radically cured. The Europeans seldom or never catch this disease, notwithstanding the frequent and daily connection which they have with the negro women. These women suckle the children of the white people, but they do not give them the yaws. How is it possible to reconcile these facts, which are incontestible, with the system which physicians seem to have adopted with regard to the nature of the yaws? Can it be allowed that the semen, the blood, and the skin of the negroes, are susceptible of a virus peculiar to their species? The cause of this disorder, perhaps, is the same as that which occasions their color. One difference is naturally productive of another; and there is no being or quality that exists absolutely detached from others in nature."*

* Philosophical and Political History of the Settlements and Trade of the Euro-

Dr. William Hillary, in his treatise on the Diseases of the West India Islands, or the Torrid Zone, devotes a special chapter to the *yaws*, from which we extract the following.

"That disease which the negroes in Africa, and we from them in the West Indies, call the yaws, is a native of and seems to be indigenous in Africa and Arabia, and was first brought from the former by the negroes into America and its islands. This is a distemper which has been well known for many ages in Africa, and some of the neighboring countries which are situated within the torrid zone; but I do not find that any of the Greek physicians, nor yet any of the Arabians, do mention it, except Haly Abbas, the Persian Magus. * * We are credibly told that the yaws seldom fail to attack the negroes in Africa at one time or other in their lifetime, but most frequently the children and young people; and that they very rarely or never have it a second time, if they have been perfectly cured the first time. * *

"This disease generally makes its first appearance without any previous sickness or pain, and when the patient thinks himself perfectly well, in very small pimples, no bigger than the head of a small pin, and are smooth and level with the skin; these daily increase and become protuberant pustules. Soon after the cuticle turns whitish, cracks, and rubs off, and a very small quantity of serum or clear ichor exudes out and dries, and becomes white; but neither pus nor any quantity of ichor is found in the tumor, but a pretty thick, white slough appears, and under that a red fungous flesh thrusts itself out of the skin, which gradually increases to different magnitudes, some not so large as the smallest wood strawberry, some larger; others exceeding the size of the largest mulberry, which last they very much resemble, being red, and composed of little round knobs as they are. They appear differently on all parts of the body, but most frequently, and generally are the largest, about the groin, private parts, anus, under the arms, and in the face; and it is remarkable, that in general when the yaws are very large, they are fewer in number, and è contra, when they are more numerous they are generally smaller in size. And as the yaws are thus increasing and coming to their height, the black hairs,

peans in the East and West Indies. Revised, augmented and published in ten volumes, by the Abbé Raynal, M.D., London, 1787, p. 272.

which grow out of the places where the yaws are, gradually turn to be perfectly white, like the hairs of an old man; and the ichor which oozes out of the yaws, drying upon the skin, makes it appear of a whitish color, and renders the patient a disagreeable loathsome sight: and now the disease is become very infectious to those who handle or cohabit with them. * * The time from their first appearance in the before-mentioned pimples to their full height or growth, is very different in different constitutions, as they are stronger or weaker, and according to the negroes being well fed or the contrary; for when the negro is strong, lusty, and of plethoric habit, and is well fed, the yaws will often arrive at their full growth, and be as large as a mulberry, in a month's time from their first appearance; but when the negro is weak, low in flesh, and poorly fed, the yaws will be small, and often no larger than a strawberry, at the end of three months.

"This disease is known to be infectious, but there is also a peculiar aptitude in some constitutions to receive it more readily than in others, and probably, in the same person to receive the infection more readily at one time than another."

Dr. William Hillary presents the foregoing description as relating to the disease when left entirely to nature, but he adds that when improperly treated, and interfered with in its natural course, the fungous eruptions in the yaws may in time become phagadenic ulcers, which corrode and eat away the flesh even to the bones, and then produce nodes, exostosis and caries in them, and at last totally consume and destroy them also.

Bryan Edwards, in his *History of the British Colonies in the West Indies* (vol. ii., p. 352), says: "Among the diseases which negroes bring with them from *Africa*, the most loathsome are the *cacabay* and the *yaws*, and it is difficult to say which is the worst. The former is the *leprosy* of the *Arabians*, and the latter (much the most common) is supposed, by some writers, to be the leprosy mentioned in Leviticus, chap. xiii. * * Young negro children often catch the yaws, and get through it without medicine or much inconvenience. At a later period it is seldom or never thoroughly eradicated; and as, like the small-pox, it is never had but once, the Gold Coast negroes are said to communicate the infection to their infants by inoculation. I very much doubt if medicine of any kind is of use in this disease."

Dr. James Grainger, in his *Essay on West India Diseases*,

affirms that the yaws attacks the negroes but once, and is both tedious and difficult to cure; and when repelled, infallibly ruins the constitution.

Dr. John Williamson* says that "the yaws is a disease of such a contagious character, that white people naturally feel a horror in exposing themselves to the risk of infection. It may be communicated by flies alighting from the yawy patient and penetrating in the usual manner any part of the body, by which inoculation is effected; but I must acknowledge my doubts in the extent of this contagion in an equal degree to the whites as to the African or Creole negroes. White people may expose themselves with less risk than negroes. * * Some few instances came within my knowledge of white persons being infected with yaws from sexual intercourse; and it is dreadful to imagine the hard fate to which such persons are condemned, but absolute exclusion from society of their own color is necessary until a cure is completed. It is additionally unfortunate that the evil does not cease then. A white person who has had yaws, ever after has an *onus* attached to him, affecting his disposition, particularly should he feel inclined to form a connection by marriage with any reputable female of the country."

It appears that in general, if not always, the occurrence of the yaws is consequent to the application of its specific virus to an abraded surface of an individual in whom it has not previously existed; and this, although frequently by accident, is not unfrequently by design. According to Dr. Wright, the most usual circumstances under which it is contracted are, first, by sleeping in the same bed, and the ichor getting on the wounds or scratches of the uninfected; secondly, by handling the infected, and allowing the virus to touch scratches or excoriations; thirdly, by the use of the same bowl or basin in washing their sores which had been previously used for similar purposes by the infected negroes; fourthly and most usually, by small flies, which, having gorged themselves with the virus of the diseased, alight on the ulcers of the hitherto uninfected, its propagation being as certain by the minutest quantity as if it were ever so considerable.

The progress of the operation of the virus of yaws in the animal economy, unlike that of small-pox, is very variable in different individuals; but from the experiments of Dr. Thomson

* Medical and Miscellaneous Observations relative to the West India Islands, vol. ii., Edinburg, 1817, pp. 141–161.

it may be inferred, that from seven to ten weeks is the usual period which elapses between the insertion of the virus and the development of the eruption. In one instance, however, for which we have the authority of Dr. Adams, the interval appears to have been ten months. It has been remarked that the blood of yaw patients does not differ in appearance from that of healthy persons, and that, when used for inoculation, it fails to communicate the disease; moreover, that the infected are as liable to other diseases as persons in a healthy condition.

NOTES ON THE HISTORY OF YAWS IN THE SOUTHERN STATES.

The first recorded observations on the yaws, as appearing amongst the negroes of Louisiana, were those of the historian, M. Le Page du Pratz, who came over with a colony of eight hundred men in 1718, when New Orleans consisted of only a few huts, and who purchased slaves upon his arrival in the colony, was a planter for sixteen years, and was likewise overseer or director of the public plantations, both when they belonged to the West India Company and afterwards when they fell to the Crown—by which means he had the best opportunities of knowing the nature of the soil, climate and diseases of Louisiana. Du Pratz published his history of Louisiana one hundred and twenty years ago, namely, in 1758.

That the negroes of Louisiana, as early as 1718–1734, suffered with the yaws, syphilis and scurvy, is evident from the directions given by M. Le Page du Pratz as to "*the choice of negroes; of their distempers, and the manner of curing them;*"* from which we extract the following: "The first thing you ought to do when you purchase negroes, is to cause them to be examined by a skilful surgeon, and an honest man, to discover if they have the venereal or any other distemper. When they are viewed, both men and women are stripped naked as the hand, and are carefully examined from the crown of the head to the sole of the feet, then between the toes and between the fingers, in the mouth, in the ears, not excepting even the parts naturally concealed, though then exposed to view. You must ask your examining surgeon if he is acquainted with the distemper of the yaws, which is the virus of Guinea, and incurable by a great many

* History of Louisiana, vol. ii., pp. 255–260.

French surgeons, though very skilful in the management of European distempers. Be careful not to be deceived in this point, for your surgeon may be deceived himself; therefore attend at the examination yourself, and observe carefully over all the body of the negro, whether you can discover any parts of the skin which, though black like the rest, are, however, as smooth as a looking-glass, without any tumor or rising. Such spots may be easily discovered, for the skin of a person who goes naked is usually all over wrinkles. Wherefore if you see such marks, you must reject the negro, whether man or woman. There are always experienced surgeons at the sale of new negroes, who purchase them; and many of these surgeons have made fortunes by that means, but they generally keep their secret to themselves." * *

"You must never put an iron instrument into the yaw; such an application would be certain death.

"In order to open the yaw, you take iron rust reduced to an impalpable powder, and passed through a fine search; you afterwards mix that powder with citron juice, till it be of the consistence of an ointment, which you spread upon a linen cloth greased with hog's grease, or fresh lard without salt, for want of a better; you lay the plaster upon the yaw, and renew it evening and morning, which will open the yaw in a very short time without any incision.

"The opening being once made, you take about the bulk of a goose egg of hog's lard without salt, in which you incorporate about an ounce of good terebinthine, after which take a quantity of powdered verdigris and soak it half a day in good vinegar, which you must then pour off gently with all the scum that floats at the top. Drop a cloth all over with the verdigris that remains, and upon that apply your last ointment. All these operations are performed without the assistance of fire. The whole ointment being well mixed with a spatula, you dress the yaw with it; after that put your negro into a copious sweat, and he will be cured. Take special care that your surgeon uses no mercurial medicine, as I have seen, for that will occasion the death of the patient."

Bernard Romans,* whose work on Florida was published in 1776, says: "I have seen three or four instances of the disease

* Concise Natural History of East and West Florida, p. 256.

called body yaws (in the islands), and in Carolina the lame distemper. This is said to proceed from hereditary venereal taints; it appears in cancerous corroding sores in the mouth and throat, and spreading ulcers, together with fleshy protuberances, chiefly on the face, breast and thighs, with a swelling of the shin and knee bones, and commonly corrodes the cartilages of the nose, its first symptoms showing themselves about the throat and palate, having caused ignorant people to mistake it for the *Angina Suffocativa* before described. Mercurial medicines are used against it, afterwards diet drinks of China root, nut grass, etc.; the sores in the mouth are often to be rubbed with a feather dipped in syrup of roses, to an ounce of which two drops of sp. vit. have been added: unctuous, salt, spiced meats and spirituous liquors are absolutely to be avoided; frequent sweats are also prescribed, and a great care against catching cold."

It is evident from the statements of these authors that the yaws afflicted the Africans imported to the colonies of America. It is also well established, that this disease is of comparatively rare occurrence at the present day amongst the descendants of the native Africans. These facts sustain the following propositions.

1st. The yaws is an African disease, and disappears gradually when introduced upon the North American Continent.

2d. The disease is not of a venereal nature, and is not propagated and spread in the same manner as syphilis.

3d. If hereditary, the tendency to its reproduction may be lost by change of climate, habits, and dress and diet. It is probable that increased cleanliness, more abundant supplies of clothing and wholesome food, may have been the chief causes of its disappearance amongst the negroes born on the soil of the Southern States.

Relations of Yaws to Syphilis.

The yaws and syphilis have frequently been considered as modifications of the same disease. This view has found its most distinguished and able advocate in Dr. James Copland,* who says: "This distemper has existed in Africa for ages before the epidemic outbreak of syphilis in Europe at the end of the 15th

* Dictionary of Practical Medicine. Amer. ed., vol. iii., p. 1473.

century, and if not identical with, is at least a form or modification of the the disease which existed in the West India Islands, when they were discovered by Columbus, and which was considered as intimately resembling, if not the same as the epidemic spyhilis of the 15th and 16th centuries.

"The African syphilis, or the *yaws* as commonly termed, in all respects more closely resembles the earlier manifestations of syphilis in Europe than the modern occurrences of this distemper. Indeed, the few cases of yaws which I saw in Africa, in 1817, agreed with the early accounts of syphilis as prevalent in Europe in the 15th and 16th centuries; not only as respected the character and severity of the distemper, but also as regarded the modes of its communication and the treatment of it found most beneficial. That the yaws in Africa is identical with the yaws or pian of the West Indies, is also undoubted; and it is most probable that the identity existed before the discovery of America."

A comparison between the symptoms of syphilis and yaws will at once establish some important distinctions.

Whilst it is true that the yaws will affect the cartilages of the nose and palate, like syphilis, on the other hand, in primary syphilis neither eruptions nor fungi appear, as in the yaws, except in the pudenda, and then only in the form of warts. Syphilis will never cease spontaneously like the yaws. Persons suffering from the yaws may contract syphilis, and the latter disease cannot be cured until the yaws begin to decline.

The febrile symptoms in yaws are more marked than in syphilis, and the progress of the disease depends largely upon the state of the constitution, habits and diet of the patient.

The period of incubation after inoculation varies in the two diseases; in the case of yaws it varies from seven to ten weeks.

The eruptions or cutaneous manifestations in yaws are wholly different from those of syphilis.

Leprosy in the West Indies.

That leprosy was introduced into the West Indies from Africa and the south of Europe at an early day, is evident from the statements of various authors. Thus Dr. Hans Sloane, whose observations were commenced in 1687, in the Island of Jamaica, records a case which he regarded as the Lepra Græcorum, and

also describes the indigenous plants which were supposed to be useful in the treatment of this disease.

Dr. James Grainger, in his "*Essay on the more common West India Diseases*," published in Edinburgh, 1802, says that although the white people in the West Indies are not exempted from this dreadful calamity, the negroes are most subject thereto. "I could write a great deal upon this disorder, and but little to the purpose. Like the gout, it is the disgrace of art. I am doubtful whether it be infectious or not. The children of infected parents are not always seized with the leprosy, and I have known the wives of the leprous remain free from it for years. It is, however, the part of prudence to remove the distempered from the sound. * * I once saw a negro man whose wool grew white, and whose skin put on a farinaceous appearance. He was a hideous spectacle. His appetite was gone."

Dr. William Hillary states that the leprosy of the Arabians was first brought to the West Indies by the negroes from Africa, and "is undoubtedly a native of that quarter of the world and Arabia, and is not originally of the western part of it; neither was it ever known here before it was brought hither by the negroes, among whom it is now too frequent here, and has made its way into several families of the white people also; and it is much to be feared that it will spread further in this warm climate, into many more both white and black families, if the legislative power do not interfere, and endeavor to prevent its spreading by some suitable, wise and effectual laws, as we see the French and Spaniards have done.*

NOTES ON THE HISTORY OF LEPROSY IN THE SOUTHERN STATES.

The earliest description of leprosy in these Southern States, drawn from direct observations, appears to be that given by Captain Bernard Romans, in his rare and valuable "*Concise Natural History of East and West Florida*;" printed in New York in 1776.

The account given by Bernard Romans of the diseases of the negroes in western Florida, shortly after its passage into the

* A Treatise on such Diseases as are most frequent in or are peculiar to the West India Islands, or the Torrid Zone.

hands of the English, and which without doubt also applied to Louisiana, under the French and Spanish, is much more circumstantial and important than that of Du Pratz. Bernard Romans says that the chronic diseases amongst the blacks were *leprosy*, *elephantiasis*, and *body yaws*, called in Carolina the lame distemper.

The following description of *elephantiasis* and *leprosy*, as they prevailed in Florida more than a century ago, as given by this writer and accurate observer, will enable us to understand why, about the same time, there should have been any necessity for the foundation of a *hospital for lepers near New Orleans.*

"A loathsome disease appears sometimes among the negroes after severe acute disorders, especially if the patient has been obliged to keep his bed long, likewise after a violent exercise has brought on a surfeit: this is called the *elephantiasis*, from the swelling of the feet and legs. It is most frequently seen to affect one leg only. In the first stages of this disorder the patient becomes wretched through excessive lassitudes, which bring on an emaciation of the body, then the corrupted juices subside into the leg or legs and feet, there swell; the skin becoming distended, shines and shows the distended veins everywhere below the knee; now the skin by degrees loses its gloss, and becomes unequal and sometimes scaly. After this chaps make their appearance, the glands are stretched, and the scales are daily enlarged, appearing as hard and callous as the hide of an alligator, notwithstanding which, the slightest prick with a pointed instrument will cause the blood to exude. This disease affects neither the appetite nor the digestive powers of the body; on the contrary, the patient in this and cheerfulness of spirits resembles the healthiest of men, and the inconvenience of his heavy leg only prevents his ability for the more laborious part of his duty.

"No manner of cure has yet been found for this cruel disorder, but the patients often live to a very advanced age under the pressure of its yoke, even when it has been contracted in early youth. It is said that the amputation of the affected limbs is no cure, for the disease will immediately attack the sound leg; this I find also affirmed by Hughes, in his Natural History of Barbadoes. * * *

"The leprosy, so-called, whether the same as was the cause of proscription to the unhappy patients under the Mosaic laws, I

shall not pretend to determine. Certain it is, that it is a nauseous, loathsome and infectious disease, sometimes seen among the blacks. This appears first with the loss of beard and hair from the eyebrows, swelling of the lobes of the ears; the face begins to shine, and brown protuberances appear thereon; the lips and nose swell to a monstrous size, the fingers and toes will in the end drop off, and the body becomes at last so ulcerated as to make the poor incurable patient really a miserable object of pity."*

ESTABLISHMENT OF A HOSPITAL FOR LEPERS IN NEW ORLEANS, IN 1785.

One of the first measures of Miro's administration, which succeeded that of Galvez, in 1785, was one of a most remarkable character in its purpose, namely, the foundation of a hospital for lepers.

Judge Martin says: "There being a number of persons in the Province afflicted with leprosy, the Cabildo erected an hospital for their reception, in the rear of the city, on a ridge of high land, between it and the Bayou St. John, which is probably the ridge anciently separating the waters of the Mississippi from those of Lake Pontchartrain."†

The account given by the historian Gayarré‡ is more detailed and circumstantial, and is as follows:

"It is remarkable that leprosy, which is now so rare a disease, was then not an uncommon affection in Louisiana. Those who were attacked with this loathsome infirmity generally congregated about New Orleans, where they obtained more abundant alms than in any other part of the colony. They naturally were objects of disgust and fear, and the unrestrained intercourse which they were permitted to have with the rest of the population was calculated to propagate the distemper. Ulloa had attempted to stop this evil, by confining some of the lepers at the Balize, but this measure had created great discontent, and had been abandoned. Miro now determined to act with more

* Concise Natural History of East and West Florida, etc., by Captain Bernard Romans, 1776, pp. 255–257.

† The History of Louisiana from the Earliest Period, by Francois Xavier Martin, vol. ii., p. 75.

‡ History of Louisiana: Spanish Domination, pp. 166–167.

efficacy in this matter, and in his recommendation, the Cabildo or Council caused a hospital to be erected, for the reception of these unfortunate beings, in the rear of the city, on a ridge of land lying between the river Mississippi and Bayou St. John. The ground they occupied was long known and distinguished under the appellation of *La terre des Lépreux,* or *Lepers' Land.* In the course of a few years the number of these patients gradually diminished, either by death or transportation, the disease disappeared almost entirely, the hospital went into decay, and Lepers' Land remained for a considerable length of time a wild-looking spot, covered with brambles, briars, woods, and a luxurious growth of palmettoes. It is in our day a part of Suburb Trèmé, and is embellished with houses and all the appliances of civilization."

I possess no data by which to determine the precise nature of the leprosy of Louisiana, during the days of the French and Spanish domination; but it may with reason be supposed that several affections were confounded with the leprosy of the ancient Egyptians, Hebrews and Greeks, such as constitutional syphilis, elephantiasis and the yaws of Africa. Some twenty-five years ago, I observed upon the cotton and sugar and rice plantations on the coast of Georgia, amongst the surviving natives of Africa imported upon the slavers of former times, two cases of yaws and one case of leprosy; also a case closely resembling leprosy in the white race. In Louisiana I have observed two cases of yaws in negroes born in the State, and the case in which the patient was a native of Africa; three cases of elephantiasis amongst the native whites, one case in a native of Austria, one case in a native of China. In the case of a white woman, a native of New Orleans, the entire face and much of the trunk and the upper and lower extremities, were disfigured by the nodular hypertrophy of the skin.

Four cases of *leprosy* have come under my observation in Louisiana.

In 1872, a case was brought from Vermillion Parish, for the purpose of obtaining my medical advice and treatment. Upon examination, I concluded that the case was one of leprosy. I lost sight of this case up to the present month (October, 1877), when the following information was furnished by Dr. W. G. Kibbe, of Abbeville, Vermillion Parish, Louisiana.

NEW ORLEANS, Oct. 12th, 1877.

Prof. Joseph Jones, N. O.:

Dear Sir—I have been requested by Dr. W. D. White and Dr. R. Segrera, of Abbeville, Vermillion Parish, to present the following facts with reference to certain cases of leprosy. I am informed by Drs. White and Segrera that one of these cases, Felicien Ourblanc, visited New Orleans in 1872, for the purpose of obtaining your medical opinion and advice as to treatment. I am informed that your former student, Mr. Isaac Wise, of Abbeville, Vermillion Parish, accompanied this patient to your office.

After a careful examination you pronounced the case one of leprosy. I have seen several of the cases, and was consulted by Joseph Drenet, 5th case.

You will oblige Drs. White and Segrera, as well as myself, by giving us all the facts in your possession upon the history of this disease and relative diseases in the Southern States.

Respectfully, yours,

W. G. KIBBE.

LEPROSY IN VERMILLION PARISH, LOUISIANA.

The first case was an old lady, Mdm. Ourblanc. She was the daughter of Drouet (who came from the south of France many years ago). In 1866 or '7 she showed symptoms of disease; there was no physician called in. Her husband being a native of and raised in France, seemed familiar with the disease and recognized it to be that of leprosy, and it was useless to have her treated, as it was incurable. From the time of its appearance in his wife Ourblanc separated himself from her, fearing contagion. During the year 1870 she died, I am told from exhaustion, as there was extensive ulceration. She raised four sons and two daughters. One of the daughters died during the late war, from an acute disease; was grown and married at time of her death. The second daughter is living in Vermillion Parish, and is reported to have leprosy, but I have no positive proof of its correctness.

The next case was Felicien, second son of Mdm. Ourblanc,

aged about 22 years when it made its appearance in 1871. He was clerking in a dry goods store in Abbeville at the time, and remained there about the year after, when he came to New Orleans to be examined by Prof. Joseph Jones, who pronounced the disease *leprosy.* Soon after this he went to New York to be treated, and then to the Hot Springs in Arkansas; from there he went to Shreveport, La., and engaged in business, and is there at present, still suffering from the disease.

The third and fourth cases appeared near the same time about 1872, in the oldest son, Denanceux, aged about 30 years, and the youngest son, Pierre, aged about 18 years at time of its appearance. In the case of Denanceux, the disease seems to be running its course more rapidly than in the others. He is unable to do any kind of work, and much reduced in flesh and strength, is completely disfigured, scarcely looking like a human being, his beard, eyebrows and eyelashes having all fallen out, and hair is growing very thin on his head. Dr. Young, of Abbeville, informs me that there is complete anæsthesia of face, and hands and toes are in state of ulceration; he also tells me the first thing he observed in all the cases he saw, was a bright red spot on forehead. The above four cases originated in the town of Abbeville.

The fifth case is that of Joseph Drouet, aged about 35 years, and lives about eight miles from Abbeville. He is the son of Baptiste Drouet, who was a brother of Mdm. Ourblanc. He applied to me, during the summer of 1877, to be treated. He states he first noticed the disease in 1875; a small red spot on his face first attracted his attention. When I saw him, the redness was general over the face and slightly purpled; there were several large red spots on chest and a few yellow spots, and large dark brown spot on inner side of thigh extending nearly to knee; he said it had been bright red and gradually turned dark. His general health did not seem to be much impaired; his eyebrows had become very white, also lashes He has a wife and five small children. As I was not practising I declined treating the case.

Case six was Mdm. Albert Guedry, daughter of a Dubois who is of French descent, but as far as I have learned, is not related to the Ourblancs or Drouets. She has two children, and I am told the disease is making rapid progress. She was

married, I think, in 1873, and Dr. Young informs me, had the disease at the time. She is supposed to have contracted the disease from nursing Mdm. Ourblanc during her last illness. This young girl was the only one who would remain constantly with her, except an old negro woman who attended to the room. The old negro woman says the young girl would frequently lie on the bed occupied by Mdm. Ourblanc.

Seventh case is of more recent occurrence. It is a young man by the name of Clemens, aged about 20 years, lives a few miles west from Abbeville, and is said not to be related to either of the families just named, and is suspected to have contracted the disease by contagion. In 1875, Pierre Ourblanc was peddling through the parish, and would frequently stop over night at the house where this young man was staying, and they slept in same bed. In 1877 the young man applied to a physician to be examined and treated; the disease was recognized at once as leprosy.

There are several other cases reported to be in the parish, but there is not sufficient evidence to justify me in stating the cases to be leprosy. The husband of the old lady who died of leprosy is now living in Abbeville, apparently in fine health.

The description of the preceding cases by Dr. Kibbe corresponds with my own observations on this disease in Louisiana, which presented in well marked cases discoloration of the skin, dusky red or livid tubercles of various sizes on the face, ears and extremities; thickening or rugous state of the skin, a diminution of its sensibility, and falling off of the hair, excepting that of the scalp; hoarse nasal or lost voice; ozœna; foul stinking breath; loss of mobility in the fingers and toes; ulceration of the surface, and especially about the joints of the toes and fingers; extreme fætor; difficult respiration; swelling of the fingers and toes, with fissures on the integuments; muscular atrophy; the face and countenance so disfigured with tuberous knots as to appear deformed and horrid, like that of a satyr or lion.

The disease, as at present existing in Louisiana, demands careful investigation and isolation, and if it continues to spread, the power of the State Government, by legislative enactment, should be invoked for the legal insulation of restrictive and sanitary measures.

495 St. Charles street, New Orleans, La.

ON DESTRUCTIVE LESIONS OF THE CORTICAL LAYER OF THE CEREBRUM.

BY H. D. SCHMIDT, M.D.,

Pathologist of the Charity Hospital of New Orleans, and Member of the American Neurological Association.

(*With Plate.*)

In the last July number of the *N. O. Medical and Surgical Journal*, an article on "Cerebral Localization of Function" was published, in which I presented to the reader a brief sketch of the history of this subject, embracing the original experiments

EXPLANATION OF ILLUSTRATIONS—FIGURES 1 AND 2.

A—Fissura Silvii (Fissure of Sylvius).
B—Fissura parieto-occipitalis (parieto-occipital fissure).
C—Fissura calcarina.
a—Ramus horizontalis, } Of the fissure of Sylvius.
b—Ramus ascendens, }
c—Sulcus centralis (central sulcus).
d—Sulcus præcentralis (precentral sulcus).
e—Sulcus frontalis superior (superior frontal sulcus).
f—Sulcus frontalis inferior (inferior frontal sulcus).
g—Sulcus interparietalis (interparietal sulcus).
h—Sulcus temporalis superior (superior temporal sulcus).
i—Sulcus temporalis medius (middle temporal sulcus).
k—Sulcus occipitalis transversus (transverse occipital sulcus).
l—Sulcus occipitalis longitudinalis inferior (inferior longitudinal occipital sulcus).
m—Sulcus calloso-marginalis.
n—Sulcus hippocampi.
1—Gyrus centralis anterior (anterior central convolution).
2—Gyrus centralis posterior (posterior central convolution).
3—Gyrus frontalis superior (superior frontal convolution).
4—Gyrus frontalis medius (middle frontal convolution).
5—Gyrus frontalis inferior (inferior central convolution—supposed centre of speech of *Broca*).
6 and 6'—Lobulus parietalis inferior (inferior parietal lobule); 6—lobulus supra marginalis, and 6',—gyrus angularis.
7 and 7'—Lobulus parietalis superior (superior parietal lobule), 7—lateral portion, and 7'—median portion, i. e., præcuneus, or, also, quardrate lobule.
8—Gyrus occipitalis primus (superior occipital convolution).
9—Gyrus occipitalis secundus (middle occipital convolution).
10—Gyrus occipitalis tertius (inferior occipital convolution).
11—Gyrus temporalis superior (superior temporal convolution).
12—Gyrus temporalis medius (middle temporal convolution).
13—Gyrus fornicatus (callosal convolution).
14—Cuneus (internal occipital lobule).
15—Gyrus occipito-temporalis medialis (tongue-shaped lobule).
16—Gyrus hippo campi.
17—Gyrus occipito-temporalis lateralis (spindle-shaped lobule).
18—Gyrus rectus.

NOTE.—The "paracentral lobule" represents a small portion of the superior frontal convolution on the median surface of the hemisphere, situated directly in front of the termination of the sulcus calloso-marginalis.

of *Fritsch* and *Hitzig*, with those of *Ferrier*, *Nothnagel*, *Dupuy* and others. It was also mentioned that, although the experimenters agreed in the recognition of the facts observed, they nevertheless differed in their interpretation; for, while a number of them believed in the existence of certain motor centres in the cortical layer of the cerebrum, forming a separate region or zone, others disputed this view in upholding the current theory of the non-excitability of the cortical layer, and its homogeneousness of function. In the same article I reported some observations on lesions of the cortex cerebri, taken from the *London Medical Record*, but originally published in the *Revue Mensuelle* by MM. *Charcot* and *Pitres*, with the view of pathologically confirming the existence of these motor centres in the brain. Since that time, the series of these observations has been completed by the addition of a considerable number of similar cases; and through the politeness of one of my French medical friends in our city, a subscriber to the *Revue Mensuelle*, I have had the opportunity of perusing myself the original articles of MM. Charcot and Pitres in that journal, and have been surprised by the large number of their own observations, together with those of other observers, which they bring forward in evidence of the existence of cortical motor centres, and, also, by their systematic classification of the clinical symptoms relating to the particular lesions of the cortex cerebri. On the other hand, I have also had opportunity to study the particular views of one of the most eminent among the opponents of the psycho-motor theory—I mean Dr. *Brown-Séquard*—such as he explained them in his lectures, delivered at Dublin in November, 1876, and also lately in New York. As the gentlemen engaged in the solution of the above question occupy the highest position in the medical world, and as the subject is one of the most obscure and difficult in medical science, the existing controversy is of unusual interest. It is for this reason that I propose, before reporting a few cases relating to the same subject, and which I lately observed and examined at the Charity Hospital, to present to the reader some of the details of the leading facts of the controversy, such as they are brought forward from both sides—more especially as their nature is both instructive and practical—and from which the practising physician may gain some advantage in the diagnosis of some particular nervous disorder which he meets in daily practice. As regards the numerous cases described by MM. Charcot and Pitres in illus-

tration of the subject, it is, for the want of space, impossible to present them to the reader in detail; only the main points can be cited. The beginning part of these observations, it is true, was already briefly reported in the article on "Cerebral Localization," in the July number of this Journal, but, for the sake of completeness of the present article, a repetition cannot be well avoided.

Leaving aside the prefatory remarks of the authors, we shall at once proceed to the observations.

Part I.

Lesions of the Cortical Layer of the Cerebrum, situated Outside of the Motor Zone.

Extensive lesions of the convolutions of the cerebrum not accompanied by motor symptoms may occur; neither were they overlooked by ancient observers, but they were difficult to explain upon the theory of functional homogeneousness of the brain. In explanation of this phenomenon, it was supposed that whenever cerebral lesions were developing very slowly, a functional compensation might be established opposing the appearance of the ordinary symptoms of these lesions. But this explanation is rendered untenable by the observations of cases with traumatic injuries of the cranium, accompanied by lesions of the cerebrum, and protrusions of fragments of the cerebral substance, in which no phenomenon of paralysis or convulsion was noticed. The annals of science contain a considerable number of such facts.

To explain the absence of paralysis in these cases of traumatic injury of the encephalon, the very slow development of the alterations cannot be appealed to; for the existence or absence of motor symptoms does not depend upon the age of the lesion, but rather upon its locality. Every lesion of the motor zone, even of small extent, must, with disregard of its age, be accompanied either by paralysis or by convulsions; whilst, on the contrary, the lesions situated outside of the motor zone, without regard of their age and extent, do not manifest themselves by any trouble in the movements. Therefore, the absence of motor symptoms in certain cerebral lesions cannot any more be regarded as a mere casualty, because it is the necessary consequence of the functional diversity of the different regions of the cortical layer.

It depends, now, to determine by clinical and anatomo-pathological observations, which regions of the cortical layer may be affected, without being followed by a disturbance of motor power. The following observations will furnish some elements to the solution of the problem.

Case 1. Latent softening of the angular gyrus of the inferior parietal lobule, of the posterior half of the island of Reil, and of the superior and middle temporal convolutions; no hemiplegia.

Case 2. Latent softening of the gyrus occipito-temporalis medialis, and the gyrus occipito-temporalis lateralis of the temporal lobe; no hemiplegia.

Case 3. Softening of a large portion of the convexity of the posterior lobes; no hemiplegia.

Case 4. Hemorrhagic foyer, throughout the second frontal convolution; no hemiplegia.

Case 5. Dyspepsia; adynamic condition; sacral eschar, softening of the base of the anterior lobe of the left hemisphere; no hemiplegia.

The preceding clinical facts, and anatomo-pathological observations prove that quite an extensive portion of the cortical layer of the cerebrum possesses no influence over the execution of regular voluntary movements. The temporal and occipital lobes, the inferior parietal lobule, the angular gyrus, the island of Reil, the cuneus and præcuneus, the orbital lobule, and the anterior part of the first, second and third frontal convolutions may, indeed, be destroyed by softening, pressed by tumors, irritated by osseous projections, or by hemorrhagic effusions, without being followed by any motor phenomenon. Even very extensive destructive lesions, situated upon these parts of the cortical layer, are not followed by secondary degeneration of the spinal marrow.

PART II.

Lesions of the Motor Zone of the Cortical Layer of the Cerebrum.

The motor zone of the hemisphere of the cerebrum in man comprise, after the authors' observations, the anterior and posterior central convolutions, the paracentral lobule, and probably those parts of the cortex, also, which are situated in the imme-

diate vicinity, such as the root or origin of the frontal convolutions, as well as the superior and inferior parietal lobules. The results of experimental physiology seem to indicate that in the higher animals the cortical motor zone does not represent a simple and functionally homogeneous organ, but that it is rather formed by the juxtaposition of several distinct centres, functionally independent of each other. While the excitation of one part of the motor zone determines the movements of the front limbs of the opposite side, the reaphores must be applied to a different part in order to obtain movements in the hind limbs; a little farther, the centres for the movements of the neck, jaws and lips will be found.

The total or partial experimental destructions lead to the same conclusions. Indeed, when these destructions are produced in the inferior animals, the consecutive motor troubles are either null or scarcely appreciable. But in proportion to the ascent on the scale of organic perfection, the cerebral functions assume a relative greater importance. In some of the higher animals, as the dog and the cat, these destructive lesions of the motor zone will already cause more definite disturbance in the voluntary movements, characterized by a kind of paresis, persisting for several days. (Nothnagel, Schiff, Carville and Duret, etc.) In the monkey, according to the recent experiments of *Ferrier*, the partial destruction of the cortical motor centres produces a complete and permanent paralysis of the corresponding parts on the opposite side of the body; and, when in these animals a centre has been completely disorganized, there will be no compensation established, or any return to the normal state, but the paralysis will persist without amelioration during the whole extent of time, as the observation may last.

The observations of MM. Charcot and Pitres seem to demonstrate that the same phenomena are observed on man as on the monkey, namely, that every disorganizing lesion of those convolutions, corresponding to the voluntary motor centres, is always followed by a complete and persisting paralysis on the opposite side of the body. However, every lesion of the cortex is not necessarily destructive. Certain detrimental changes seem to exercise upon the cortical substance an irritation more or less permanent and intense, which, instead of producing an abolition of function, such as pure simple paralysis, gives rise to contractures and convulsions. Finally, these phenomena—paralysis

and contracture—may either appear combined, or in succession to each other; and it is very easy to understand how a limited lesion may have disorganized a part of the cortical motor organs, and, on the contrary, produce at the periphery of its domain a permanent irritation, influencing the unaffected neighboring centres. Thence the attention will be directed upon different associations, symptomatic of paralysis, contractures and convulsions.

It is proposed to successively study the effects of total or very extensive lesions of the motor zone, and then those partial lesions of the different departments of the same region. Above all, the cases of superficially or more deeply seated limited destructive lesions shall be considered. The diffuse irritative lesions, such as chronic meningo-encephalitis, and simple or tuberculous meningitis, will be passed over. There is no doubt but that the motor troubles, such as convulsions and partial or variable paralyses, frequently observed in the course of general paralysis, and of acute meningitis, are due to a great extent to superficial lesions of the motor zone. But the great extent in surface of the alterations in most cases, and the difficulty of exactly localizing their limits, generally render cases of this order relatively less favorable to the study of cortical localization.

A.—*Total or Very Extensive Lesions of the Cortical Motor Zone.*

The motor regions of the cortical layer of the hemispheres receive almost all their arterial blood, required for their nutrition, from the superficial branches of the Sylvian artery; and the anatomical arrangement of this artery is such as may deprive the cortical layer of blood, while the circulation remains undisturbed in the central parts. It is not very rare that thrombosis or embolism obliterate at once the trunk of the Sylvian artery beyond the origin of those branches supplying the corpus striatum, and give rise to a softening which, though extending over the whole cortical motor zone, nevertheless leaves the central nuclei entirely unaffected. In consequence, a hemiplegia on the opposite side of the body—in most cases appearing suddenly—is always produced. The hemiplegia is total in so far, that it affects at the same time the inferior facial nerve (cervico-facial division), and the two corresponding limbs. The limbs affected by paralysis are completely flaccid, and, in consequence,

the hemiplegia differs in no essential point from *common central hemiplegia*, resulting from a destructive lesion of the gray opto-striated nuclei. Such are the phenomena in the following cases.

Case 6. Attack of apoplexy; left hemiplegia with flaccidity of the paralyzed limbs; softening of that portion of the cortical layer supplied by the right Sylvian artery.

Case 7. Left hemiplegia; rotation of the head, with conjoined deviation of the eyes; extensive softening of the cortical layer behind the central sulcus (fissure of Rolando), embracing the greater portion of the posterior central convolution.

Case 8. Cortical hemiplegia, with secondary contracture of four years' duration; yellow patches of the cortical layer, embracing the two inferior third of the anterial central, and the inferior half of the posterior central convolutions, the posterior three fourth of the second and third frontal convolutions, and the whole island of Reil.

Case 9. Right hemiplegia; aphasia; softening of the cortical layer of left hemisphere, embracing the root of the third frontal convolution, the anterior and posterior central convolutions, the two posterior convolutions of the island of Reil, and the inferior parietal lobule.

Case 10. Right hemiplegia of six years' duration; total destruction of the anterior and posterior central convolutions, a portion of the island of Reil, and the superior and inferior parietal lobule.

From the preceding observations, it may be seen that the extensive destructive lesions of the cortical motor zone manifest themselves during life by symptoms which, taken together, do not permit to be distinguished from those lesions affecting the central nuclei. In the former as in the latter, indeed, the hemiplegia is more or less pronounced, but total—that is to say, affecting at the same time the face and the limbs, marked by the flaccidity of the muscles in paralyzed limbs, but accompanied by a certain degree of rigidity.

B.—*Partial or Limited Lesions of the Cortical Motor Zone.*

When the cortical lesion occupies only a limited part of the motor zone, the symptoms in total are entirely different. In such a case, the hemiplegia presents the character of being par-

tial, to a certain degree dissociated. In opposition to what is observed in the preceding group of facts, it is from its first appearance frequently accompanied by primitive transitory contracture, and may, if the patient survives, become permanent, and then be accompanied by secondary contractures. Finally, the symptoms of paralysis are often joined by epileptiform convulsions (partial epilepsy).

Dissociated Hemiplegia and Secondary Contracture in Cases of Cortical Lesions.—It must be remembered once more, that hemiplegia resulting from a lesion of the central ganglia necessarily involves at the same time the inferior part of the face, the superior, and also to a certain degree the inferior limbs. In such a case, the hemiplegia may be more or less marked, but it is always total, that is, affecting all the parts just mentioned. In cases of limited lesions of the cortical motor zone, on the contrary, the paralysis attacks singly, sometimes the face (region supplied by the cervico-facial division of the facial nerve), sometimes one of the inferior, or one of the superior limbs, or, also, the two limbs without participation of the face. The hemiplegia may then be called *partial*, or *dissociated.*

The fact of dissociation in certain cases of hemiplegia had not escaped the sagacity of *Romberg.* At present we may go farther, and more distinctly affirm that when isolated paralysis of one limb, or of the face (monoplegia), is due to a lesion of the cerebral hemisphere, this lesion affects a portion of the motor zone of the cortex cerebri, or the subjacent white substance. Another character of dissociated cortical hemiplegia is that the affected parts (face or limbs) are the seat of an early muscular contracture more or less pronounced or persisting.

Case 11. Attack of apoplexy; permanent left facial paralysis; slight and temporary primitive contracture of the limbs on the left side; softening of the cortex of the right hemisphere, affecting the third frontal convolution, the inferior third of the anterior and the inferior fourth of the posterior central convolutions (motor zone), the whole inferior parietal lobule, and the posterior half of the superior parietal lobule, the superior temporal convolution and the island of Reil.

Though the extent of this lesion was very great, it must be remembered that it included only a small portion of the motor

zone, for which reason it must be considered as a partial or limited lesion of this zone.

Case 12. Softening of the superior fourth of the anterior and posterior central convolutions of the right hemisphere; paralysis of the limbs on the left side, with primitive temporary contracture; no paralysis of the face.

Case 13. Softening of the cortical layer of the right hemisphere, limited to the lower portion of the anterior and posterior central convolutions; paralysis of the superior left limb, and of the left side of the face.

Case 15. Paralysis, pains, and epileptiform attack of the right limbs; no paralysis of the face; tumor of the dura mater projecting into the great longitudinal fissure.

In certain cases the cortical lesion, instead of remaining circumscribed within its primitive limits, advances gradually, affording opportunity clinically to observe the successive attacks of the limbs. When, finally, it has extended over the whole motor zone, the hemiplegia becomes total, and then it is impossible to distinguish, by the actual paralytic trouble only, a *cortical* from a *common central* hemiplegia. But in tracing the history of the development of the case, it will be found that the paralysis has not been in all parts the result of one and the same attack, but that the face and the limbs have become successively affected, and that, in reality, the hemiplegia in question is to some extent a combination of a series of monoplegia. This mode of evolution of the paralysis seems to belong properly to lesions of the cortical motor zone.

When destructive cortical lesions are not rapidly fatal, they are followed by permanent paralysis with secondary contracture of the affected parts, just as in lesions affecting the motor fibres of the internal capsule.

Case 16. Left permanent hemiplegia; secondary contracture; softening of the middle third of the posterior central convolution of the right hemisphere.

The secondary contracture in cases of this kind appears, as in cases of central lesions, to be connected with the development of a systematic sclerosis of the lateral column of the spinal marrow on the side opposite to the cerebral lesion, as the following cases will show.

Case 17. Permanent right hemiplegia; secondary contracture; softening of the two inferior third of the posterior central convolution of the left hemisphere; descending degeneration.

Case 18. Infantile spasmodic hemiplegia; contracture of the limbs on the right side; partial epilepsy; atrophy of the paracentral lobule; secondary degeneration of the spinal marrow.

Case 19. Left infantile hemiplegia of twelve years' duration (girl 18 years old); attacks of epilepsy, preceded by trembling of the paralyzed leg; no paralysis of the face; atrophy of the superior half of the anterior central convolution, the root of the first and second frontal convolutions, and of the paracentral lobule.

The existence of these secondary scleroses of the spinal cord, depending upon lesions of the cortical motor zone only, is an important fact. And it is worthy to be mentioned that not all lesions of the cortex, however extended or deep they may be, give rise to secondary degenerations of the spinal cord; but that the latter occur only when the lesions are situated within the motor zone, and not at all when the seat of the lesion, however old or extended this may be, is beyond the limits of the motor zone. It may, therefore, be concluded, that some more or less direct relations may exist between the cortical motor zone and certain fibres of the lateral column of the spinal cord, which do not exist between the latter and the other parts of the cortical layer of the cerebral hemisphere.

Epileptiform Convulsions in Cases of Lesions of the Cortex Cerebri.

The symptoms revealed in the preceding studies are frequently joined by epileptiform convulsions. These convulsions consist sometimes of a small number of localized muscular attacks; at other times they may, by their violence and gravity, call forth attacks of true epilepsy, and may give rise to a condition rapidly fatal. Their general character is to commence in an isolated group of muscles of the same limb, or even of the entire body, before the patient has lost consciousness. The loss of consciousness is not a constant phenomenon of epileptic attacks originating within the cerebral cortex, for in a considerable number of cases the patient retains the use of his intellectual faculties during the duration of the attack; he hears what is said around him,

analyzes his sensations, and renders an account of them after the termination of the attack.

These epileptiform convulsions have been observed by some of the most ancient physicians; but it was left to our century to make them a subject of systematic study. It is to Mr. *Hughlings Jackson*, of London, we are indebted for the first precise information regarding the relations between partial epilepsy and lesions of the cerebral centres. The later experiments of Hitzig, Ferrier, Nothnagel, Eckhard, Albertoni and others, in reproducing upon the animal, the principal varieties of epilepsy, have confirmed the ideas of Jackson.

When, in the superior animals, the motor zone of the brain is electrized, even by the aid of a very weak current, the experiment is frequently interrupted by tonic or clonic convulsions. The irritated convolutions are observed to become turgescent and of a violet tint; the pupils dilate enormously, and the convulsive attack commences. Sometimes the convulsions are characterized by isolated and sudden shocks in a limb, or in the face on the opposite side of the irritated hemisphere. At other times a tonic hemilateral contraction occurs, followed by clonic convulsions; the eyes, the jaws, the tongue, or the limbs, may separately or simultaneously be the seat of convulsions. In rare cases, the animal is suddenly seized with a clonic contraction of the four limbs, either followed or not by clonic shocks. It is not only in animals that convulsions, following the direct electric irritation of the cortical motor zone, have been observed. Mr. *Bartholow*, meeting with a patient who had lost a portion of the parietal bone by a destructive cancroid ulceration, plunged needles through the exposed dura mater into the subjacent cortical substance of the brain, and connected them with a faradic current. It resulted in contractions of different groups of muscles on the opposite side of the body; but when the surgeon increased the strength of the current, a violent epileptiform attack with loss of consciousness was produced, followed by a coma which lasted twenty minutes. The patient died three days after the experiment.

In all the cases spoken of, the convulsive attack is the result of immediate excitation; but it may also take place independent of any appreciable external irritation, as, for instance, through the influence of an old and permanent lesion of the cortex cerebri.

Experiments teach us that epilepsy, caused by cortical lesions, may appear under two different conditions: 1, under the influence of a direct and immediate excitation; 2, under the influence of a permanent lesion. Now, in the clinic of man, we meet with two forms of cortical epilepsy. Sometimes, indeed, the convulsions appear at the beginning of the disease under the influence of traumatism, or in the course of an irritative lesion during its development; at other times they start into existence without any apparent immediate provocation; then the lesion has been stationary for some time.

The attack of partial epilepsy may first occur in one of the superior or inferior limbs, or in the face. It may also commence, sometimes, in the muscles of the trunk, as well as in those of the neck, or with spasms of the viscera; but up to the present time, nothing is known which might indicate the attack in these localities with some precision.

Cortical Epilepsy commencing in the Superior Limb.—Generally, the first phenomenon of the attack, the involuntary contraction, takes its seat in the hand, and more particularly in the thumb or index. Mr. H. Jackson has explained this fact as follows. "The more a part," he says, "executes numerous and varied voluntary movements, the more it is also susceptible to present motor troubles under the influence of cerebral lesions. The thumb and index are the most active instruments of the will; it is these that execute the most numerous, varied and delicate movements. They are also subject to convulsions of cerebral origin more than any other part of the body." There is reason to examine this explanation, and to ask, whether the greater frequency of convulsions in the arm and hand is not simply due to the small extent of the cortical motor territory of the superior extremity, rendering it more liable to injury than those regions belonging to other parts of the body. Be it as it may, the fact exists, that in the most cases of partial epilepsy the attack commences in the thumb and index. These fingers commence in bending suddenly, or in assuming a forced extension. Then the muscular contraction extends to the wrist, elbow and shoulder, and is soon followed by more or less rapid convulsive shocks. Sometimes, after some minutes, the convulsions cease, and the attack has terminated. At other times the convulsions, instead of remaining limited to the superior limb, extend to the face and

inferior limb of the same side, or may even become general. During all this time the patient remains conscious, knows his condition, analyses the phases of the advancement of the muscular contractions, but is too powerless to suppress them; and if he loses consciousness at the moment when the convulsions have extended over a great portion of the muscles of the body, he is able, after recovering the use of his senses, to render an exact account of the phenomena which characterized the first part of the attack. The duration of the convulsions is from one to five minutes, rarely more. They leave a severe lassitude in the convulsed limb behind, and if this was not already paralyzed, it is not rare to see it inert, or very feeble for a lapse of time, varying from some hours to several days.

Frequently the convulsive attack is preceded by an *aura*, characterized by a sensation of formication, of pricking and tearing, and of coolness; or by an acute heat passing all along the arm, and extending gradually along the whole part which had been the seat of convulsions. In a number of cases the aura is first felt in the shoulder, and then extends to the fingers.

The frequency of the attacks of partial epilepsy is very variable. In certain patients they occur every day, or several times a day; in others, an interval of several months will be left. In some cases one attack is followed by another during several hours, and provokes a condition of a very serious character, similar to the state of true epilepsy. In the same patient the returning attacks are always marked by the same characters. But it may happen that the same patient is subject to incomplete attacks, limited, for example, to the arm; and to complete attacks starting also from the arm, but extending more or less rapidly over the entire corresponding half of the body, accompanied by loss of consciousness.

Case 20. Partial epilepsy; cerebral tumor, situated on the porterior part of the first frontal convolution of the left hemisphere.

Case 21. Partial epilepsy, commencing in the left thumb; cerebral tumor, situated on the inferior portion of the anterior central convolution of the right hemisphere.

Case 22. Partial epilepsy, commencing in the left superior limb; cerebral tumor, situated in the cortical layer of the pos-

terior portion of the third frontal convolution of the right hemisphere.

Case 23. Partial epilepsy, commencing in the right shoulder; cerebral tumor of one inch diameter, situated on the root of the first frontal convolution of the left hemisphere.

Case 24. Partial epilepsy, commencing in the right arm; several cerebral tumors, the largest of which measuring 2½ inches, situated on the superior portion of the parietal lobe near the great longitudinal fissure, and pressing upon the superior extremity of the posterior central convolution of the left hemisphere.

Case 25. Left hemiplegia; partial epilepsy; hemorrhagic foyer in the posterior portion of the first frontal convolution, at the place where it joins the anterior central convolution of the right hemisphere.

Case 26. Left hemiplegia; partial epilepsy; limited yellow spot upon the motor zone.

Case 27. Monoplegia of the right superior limb; partial epilepsy; glioma upon the left anterior central convolution.

Case 28. Partial epilepsy; left hemi-paresis; tuberculous mass in the right anterior central convolution.

Case 29. Monoplegia of the left superior limb; partial epilepsy, commencing in the left arm; patient cured.

Cortical Epilepsy, commencing in the Inferior Limb.—Partial epilepsy is less frequently observed to commence in the inferior than in the superior limbs, but the phenomena characterizing the attack succeed each other in a similar order, and all that has been said above, regarding the attack when commencing in the superior limb, is applicable to that commencing in the inferior. The aura, here, issues most frequently from the foot, or the calf; it consists of a sharp pain, a cool wind and a tearing sensation, ascending along the thigh and trunk up to the arm and face. The attack may remain limited to the inferior limb, or become general, accompanied by a loss of consciousness.

Case 30. Wound of the head, on the left fronto parietal region, with an escape of the cerebral substance; right hemiplegia; partial epilepsy, commencing in the right inferior limb; trepanning; cure.

Case 31. Partial epilepsy, commencing in the right inferior limb; hydated cysts in the left hemisphere.

Cortical Epilepsy, commencing in the Face.—The eyes, the lids, the cheeks and the lips, may be the seat of the aura and of the first convulsions. Most frequently the attack commences in the muscles of the lips; the mouth is severely drawn from the side of the convulsion; then the lips and eyelids become agitated by sudden convulsive contractions, which may extend to the muscles of the nape of the neck, and reach the limbs of the same side, or become general. During the attack, the face and the eyes are generally turned from the side opposite to the convulsions. Often, at the beginning of the attack, the head and the eyes are turned from the convulsed side, and turning to the opposite side during the course of the attack itself. The tongue participates in the convulsions, and as the muscular contractions are unilateral, it results that the tongue is always drawn from the side of the convulsions under the dental arches, and wounded by the convulsive approachments of the teeth.

Case 32. Partial epilepsy, commencing in the face; abscess, situated in the inferior portion of the anterior central convolution of the right hemisphere.

Case 33. Partial epilepsy, commencing in the face; contusion of the brain.

Case 34. Partial epilepsy, commencing in the face; multiple lesions of the brain.

When the partial epilepsy is the result of extensive progressing lesions, the attacks, formerly characterized by limited convulsions in a single limb, may later, in proportion to the lesion extending in surface and invading new regions of the cortex, affect both limbs and the corresponding half of the face. In other words, the convulsions may pursue the same route, as has already been shown in these cases of successive monoplegiæ, terminating in a complete hemiplegia. This particularly is noticed in the following case.

Case 35. Partial epilepsy; semi-paresis of the superior left limb; destruction of the cortex of the anterior and posterior central convolutions, the root of the three frontal convolutions, the superior and inferior parietal lobules, the paracentral lobule, and the posterior portion of the internal surface of the first frontal convolution of the right hemisphere by a glioma.

The attacks of cortical epilepsy may, in many cases, be pro-

voked or arrested by external excitations, as illustrated in the following case. A patient, affected since her infancy with spasmodic hemiplegia with contracture of the limbs on the left side, is subject to spontaneous attacks of hemiplegic epilepsy. In quickly raising the point of her left foot, a trepidation extending over the whole limb is frequently provoked; and when this position of the foot is maintained, the contracture of the arm increases, the face and the eyes turn strongly toward the left side, the labial commissure is drawn upward and backward, and a true attack of hemiplegic epilepsy, sometimes accompanied by loss of consciousness, is observed.

When the attacks are preceded by a well-marked aura, they may frequently be arrested by pinching the skin at the level of the aura, or by compressing the limb above the point of its seat.

Case 36. Cut of a sabre over the head; twenty years after, cramps in the fingers of the right hand; epileptiform convulsions; arrest of the convulsions by the application of a ligature above the place of the aura; fungous tumor upon the dura mater.

Case 37. Right hemiplegia; partial epilepsy; ocherous foyer in the posterior central convolution.

The existence of partial epilepsy, especially when concurring with paralytic phenomena, indicates almost surely a limited lesion existing in the cortical motor zone, or in contiguous parts. But, as regards the nature of the lesion, the epilepsy proves nothing, as it may indifferently be caused by abscess, tubercles, pachymeningitis, tumors, cysticerci, yellow spots, etc. Any lesion, sufficient to cause a prolonged irritation of the cortical motor zone, may determine a partial epilepsy, though the irritation may be the result of very different lesions. These lesions may exist in the meninges, in the gray cortical substance itself, or in the subjacent white substance.

Case 38. Left hemiplegia; partial epilepsy; tumor on the meninges, compressing the brain.

Case 39. Left permanent hemiplegia; secondary contracture; partial epilepsy; yellow patches upon the paracentral lobule and the middle third of the posterior central convolution of the right hemisphere.

Case 40. Left permanent hemiplegia; secondary contracture; partial epilepsy; ocherous foyer in the white substance beneath the paracentral lobule.

Certain pathological facts seem to demonstrate that the movements in chorea may be the result of cortical lesions, or, at least, of superficial irritations of the motor zone. The following fact has been observed.

Case 41. Apoplectiform attack; a semi-lateral choréiform movements; fungous tumor upon the dura mater, with a lesion of the motor zone.

It deserves to be mentioned that besides the cases cited above, there are a number of others, reported by other observers, which the authors bring forward in support of their views, relating to the existence of a motor zone in the cortical layer of the cerebrum.

The third part of these contributions to cerebral localization of function by MM. Charcot and Pitres, comprise a review of the topography of the cortical motor zone, and the localization of the particular centres in the convolutions of the human brain, with reference to the cases observed. I regret that, for the want of space, I can only present to the reader that portion of this section containing the conclusions the authors have drawn from their observations. They are as follows:

1. The cortical layer of the cerebrum of man is not functionally homogeneous: only a part of the convolutions participate in the regular exercise of voluntary movements. This part, which may be called "cortical motor zone," comprises the paracentral lobule, the anterior and posterior central convolutions, and perhaps also the root or posterior origin of the frontal convolutions.

2. All cortical lesions, of whatever extent, situated beyond this motor zone, are latent in regard to motor troubles—that is, they are not followed by paralysis or convulsions; they are never accompanied by secondary degenerations of the spinal marrow.

3. On the contrary, destructive lesions, if even very limited, but affecting directly or indirectly the motor zone, necessarily give rise to disturbances in the voluntary movements.

4. If the lesion is severe, if it destroys at once a large portion of the cortical motor zone, it gives rise to a sudden and flaccid hemiplegia, accompanied subsequently by secondary degenerations of the spinal marrow, and to a slow contracture of the paralyzed muscles, resembling completely a common central hemiplegia.

5. If the lesion affects a limited portion of the cortical motor

zone, it gives rise to monoplegiæ (suppression of functions), and to convulsions which mostly assume the form of partial epilepsy (phenomena of irritation). At the end of a certain time, these destructive lesions of the motor zone, even when limited, give rise to a secondary degeneration, descending through the crura cerebri and medulla oblongata to the lateral column of the spinal marrow of the opposite side.

6. The study of the paralyses and convulsions of cortical origin demonstrates that the cortical motor centres for the two limbs on the opposite side are situated in the paracentral lobule, and in the two superior third of the anterior and posterior central convolutions, and that the centres for the movements of the inferior portion of the face are placed in the inferior third of both central convolutions, in the vicinity of the fissure of Sylvius.

7. It is very probable, that the centre for the isolated movements of the superior limb have their seat in the middle third of the anterior central convolution of the opposite side.

8. Finally, the seat of the cortical motor centres for the movements of the nape, the neck, the eyes and eyelids, are, as yet, not exactly known.

(*Conclusion in the next number.*)

LISTER'S ANTISEPTIC TREATMENT OF WOUNDS, IN WARDS 3 AND 4½ OF THE CHARITY HOSPITAL OF NEW ORLEANS, DURING 1875, 1876, AND 1877.

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Continued from February No.

If the wound presents no reaction, and is absolutely aseptic, the secretion being minimal, thick, slimy, or from an admixture of lymphoid elements, opaque, in such a case it would be entirely irrelevant if the patient would be perfectly free from fever already inside of the first few days, or if the temperature had risen to 39°, or even 40° C. These elevations of temperature, which proceed without the symptoms of septic fever, are prognostically not of the smallest importance. Such patients feel themselves perfectly well, are without any depression, and resemble exactly patients who under a non-antiseptic treatment of wounds, suffer

temporarily a septic wound fever. They have a moist tongue and skin, eat and drink like healthy ones, read and write, converse with others, and if the injury affects an upper extremity, take exercise in the open air; the thermometer alone indicates that nevertheless a resorption of different matter has taken place, and that elements have been admitted into the circulation which act pyrogenically without, at the same time, possessing phlogistic properties. We have seen under such circumstances, the septic fever to rise up to 41° in patients who felt perfectly well otherwise; and I may say here, that in more than 100 cases of this kind of fever, in perfect aseptic wounds, that not a single time could a local irritation afterwards be observed, or that the patient ever fell into any dangerous condition. The same happens also in subcutaneous injuries. Patients with subcutaneous fractures of the femur, for instance, suffer fever in this manner, and the temperature often reaches 39°, and even more. If, therefore, some authors assert that the patients with such subcutaneous fractures did not suffer any fever, it proves only that their patients behaved like such without fever, and that thermometric measurements had not been made. Only in cases where considerable resorptions have taken place, will the aseptic fever remain longer than 3, 5 or 7 days. Yet, I will not have stated herewith that patients with pure septic fevers may not occasionally suffer fever of a longer period, and possess even a higher temperature.

The antiseptic dressings have to be continued until the coagulas, filling up the wound cavities, have been replaced by granulating tissue; or if this stadium has not been observed, until layers of epidermis have bridged over the defects, leaving but small ones remaining.

One simple disturbance might possibly happen, which could interfere with the continued application of the antiseptic dressings, and that consists in a dermatitis produced by the contact of the carbolic bandages. But this affords a singular individual disposition, a kind of idiosyncrasy. In more moderate cases, this disturbance appears under the form of an erythema with a swelling, redness, and an itching of the skin, whilst in more severe cases vesicles are formed, eventually to an elevation of the whole epidermis by a fibrinous purulent exudation, like after a fly blister. Frictions of the skin with oil, or fat, mixed with

boracic acid, may decrease the irritability of the skin, so that the antiseptic dressings need not be entirely relinquished. In the most aggravated cases, we will have to exchange the carbolic acid with a solution of salicylic acid, or chlorine water.

A word about the *hardening bandages*, *splints*, and *permanent extension*, will close these important contributions.

The antiseptic treatment of wounds in complicated fractures, described by Volkmann, renders the use of hardening bandages, and especially of the gypsum bandage, completely superfluous, at least in the beginning of the treatment, which is of great importance, since the hardening bandages, as already mentioned at another place, meet with considerable difficulties.

In compound fractures with one single wound, and not too large, a gypsum bandage with a corresponding opening (trap) in it, may be applied, though it will be impossible to surround the limb properly with the circular antiseptic bandage at the fractured place, the bandage, on account of the too limited space, having to be cramped. This will, and most so with less instructed operators, lead to miscarriages; the protection given by the bandage will not be sufficient, and the antiseptic effect not fully accomplished. In extensive lacerations of the skin and multiple draining, very complicated bandages would be needed, affording much time and labor. Though these difficulties may undoubtedly be overcome, yet it must be considered a great gain, that the hardening bandage, at least in the beginning of the dressing, can be dispensed with, without causing the least harm. The antiseptic treatment will hereby become more secure, and a great deal of time be saved. Both moments are of the greatest importance in *war practice.* The more manageable and the more *simple the technic* here is, the better in its totality will be the results. It is absolutely impossible that in war, and after great battles, all wounded can be attended by experienced surgeons. In regard to the saving of time, we ought not to forget, that the main objection which has been raised against the antiseptic dressing in the field, culminates in the question, if sufficient time is had for the application of the first bandage. If the first antiseptic bandage, which by all means has to be applied during the first two days, affords in itself in every single case 20 minutes, and $\frac{1}{2}$ to $\frac{3}{4}$ of an hour, exceptionally even more, then it is desirable in the highest degree, for the proper security of the frag-

ments, to search for means which will not take up again much time; yet this is the case with the gypsum, or other hardening bandages, and mostly so, if these have to be broken through in several places in order to get at the seat of the injuries, even with the additional help of iron or wire splints. It is totally indifferent, in how short a time a scientific surgeon, who commands the technics perfectly, can apply such a bandage. In comparison with the great mass of the wounded, the few surgeons who have been properly instructed are of no significance; of a far greater import is the average dexterity of the professional personal. Generally, in an equal efficiency of two methods of treatment, that one is always preferable, which technically is easiest to be executed, because the least mistakes are here committed. Our object is to invent, for the treatment of surgical patients, the most simple and easy comprehensible technicism, and this applies foremost to surgery in war.

The question arises now, if under the antiseptic treatment of complicated fractures, the hardening bandages offer some special advantages, and this question, says Volkmann, is, according to my experience, to be most emphatically denied, at least, for the first time after the injury has been received. In the former methods of treatment, the absolute immobilization of the fragments, as obtained by the hardening bandages, was of so great an importance, whilst even the slightest movements of the sharp ends of the bones in the fracture could produce an increase of the phlegmonous inflammation, suppuration, putrefaction, hæmorrhage, etc. Under the antiseptic treatment, all such fears need not be entertained; the slight movements of the fractured ends, surrounded with solid coagulas, and inside of the primary cemented fracture, do not produce the least reaction. Swelling of the edges of the wound, redness, pain, or even deep-seated gathering of pus, or the formation of abscesses, do not occur, even if, in an exceptional less favorable progress, the limb has to be taken out of the bandage in the beginning, daily.

The mechanical means, Volkmann continues, which I am using in the first critical period, for the immobilization of the fragments and to prevent dislocations, are very simple.

At the upper extremity, for the *fractures of the forearm*, the *injuries* and *resections of the elbow-joint*, as also for *fractures of the lower part of the humerus*, I make use of the wooden splint of

Watson, somewhat altered by me. The forearm hereby attains the position, not of full pronation, as in the Watson splint, but in supination. We have given it, therefore, the name of the *supination splint.* The position of the forearm obtained hereby is in supination, as it will be absolutely necessary in fractures of the forearm, and in resections of the elbow-joint, giving the limb a thoroughly secure and close-fitting position. The well antiseptically dressed arm is fastened upon the splint with wet gauze rollers, and care must be taken that the elbow-joint is placed in a more acute angle than the splint presents, so that the internal condyle does not rest upon it, and suffers pressure.

In fractures of the *humerus* near the shoulder—where the gypsum bandage also renders much service—the application of a thin Dessault's cushion is, for the first dressing, sufficient. Belly's gypsum hand splints are of great service, under the antiseptic treatment, in all kinds of compound fractures; they can be adapted to any position, and to each side of the limb.

On the *lower extremity*, we use in the first bandages, in *foot* and *knee-joint injuries*, *foot* and *knee-joint resections*, as in all *fractures of the ley* and *lower third of the femur*, flat splints of tin, with a section for the heel, and a reversed T-shaped support for the foot; they ought to be made of several sizes, and the extremity fastened upon it also with wet gauze rollers. All splints must be well polstered with wadding, and covered besides with thin gutta percha plates, to avoid the spoiling of the wadding by blood or secretions.

In *fractures* of *the femur*, in *both upper thirds*, in *injuries* or *resections* of the *hip-joint*, as also in oblique fractures of the lower third of the femur, we make use of extension by weights, occasionally with contemporaneously placing the extremity on a splint of tin, but mostly without it. My numerous wedge-shaped osteotomies of the upper third of the femur, which resulted all unexceptionally favorably, and which, notwithstanding the severity and magnitude of the operation, were followed by no reaction upon the wound, nor deposit of pus, have taught me that, for the first days and weeks in open separations of continuity of the femur, extensions with weights were fully sufficient, and that the gypsum bandages were here also useless.

In regard to what Volkmann has said here of the treatment of compound fractures of the thigh, applies only to the first period

of the treatment, because he fears that the gypsum bandage might be in the way of a properly applied antiseptic dressing. But this may interfere materially with the future consolidation of the bone, and cause a considerable difference in the proper length of the limb. This is to be feared the more so, if the treatment with weights should be continued for too long a period, or the fracture should be an oblique one. Instead of using extension in oblique fractures with weights, which may have to be greatly increased, in order to overcome the contraction of the muscles, and to retain the fractured ends in their replaced position, I have a far superior method in the gypsum bandage, which has never deceived me, and with which I have retained the proper length of the extremity in all cases so treated by me; moreover, without interfering with a properly applied antiseptic dressing. This method I will describe in a separate article. That Volkmann has not given up the gypsum bandage, but only restricted its general use, we will find in the following: "Notwithstanding this our treatment of the compound fractures," says Volkman, "the gypsum bandage has still an extensive field. As soon as the secretion has become small, the so-called organization of the blood coagulas in the gaping wounds has been progressing, and the incisions have chiefly healed, or if only granulating defects remain, then we begin with the different gypsum bandages. Their time may have come with the 8th or 14th day, or even at a later period of several weeks. The gypsum bandage gives comfort to the patient, and most so is this the case in dressing the leg. The hardening bandage secures unquestionably more than any other the position of the fragments of the bone, and even their slightest movements, unavoidable in all other kind of dressings, are thereby prohibited. As soon as it can be done without injury to the patient, i. e., for the safe application of the antisepsis, it will be necessary to apply such bandages, which will exclude any and every mobility of the fragments. This is the more necessary, because under an antiseptic treatment the consolidation of the fractured bones may naturally meet with greater difficulties, the formation of callus may be retarded, and even be wanting entirely. The mass of the recently formed ossifying tissue depends a great deal upon the extent of the irritation produced by the injury. Under an antiseptic treatment usually a much less voluminous callus is formed, in consequence of the

irritation being reduced to a minimum, than in the various forms of the open wound treatment. The failure of a suppuration at the seat of fracture, the rapid healing of the wounds, are moments of the utmost importance. Serious complicated fractures consolidate, under common circumstances, a long time previous to the closure of the fistula. Under the antiseptic treatment, the wounds are mostly closed, when the formation of callus is yet in an incipient condition. We need not therefore wonder, that under such circumstances the productions of tissue remain so small, as to become insufficient for the regenerative process. Thus it is that we have observed, amongst the 75 cases of complicated fractures, pseudo-arthrosis to happen 3 times, and that several times the consolidation became much protracted. Of the 3 pseudo-arthroses, *one* was of the humerus, in the second case, both bones of the forearm, and in third, the radius was affected. In the first two cases, the fault laid with the men; both might have been finally cured, if they had not quitted the treatment. In the third case, the interposition of some muscular bundles between the fragments was evidently the cause of failure of consolidation. (This is undoubtedly one of the most common and annoying causes of the formation of a pseudo-arthrosis.)

In the treatment of pseudo-arthrosis, by resection, by the bone suture, etc., there exists no doubt with us, says Volkmann, that the antiseptic bandage has also its shady side, and that we will often act more appropriately in arresting the treatment earlier than we are in the habit of doing. I will not assert that the gypsum bandage could favor the new formation of bone; on the contrary, all bandages which surround a limb in a circular manner, and are applied very tightly, produce often a not inconsiderable ischæmy, and limit the formation of callus.

A gypsum bandage, when too tightly applied, is applied improperly, but on the other hand, it is equally certain, that frequent motions of the fractured bone, at the time in which the reaction diminishes, will also act against the consolidation of the fracture in a high degree. Gypsum bandages with one, or more, but relative small traps, used in injuries which still afford a rigorous antiseptic treatment, are applied by Volkmann in such a manner, that the wound is first covered with a thick layer of wadding, saturated with carbolic water, whilst the balance of the

limb is surrounded thickly with antiseptic wadding—mostly benzoic wadding—previous to applying the gypsum bandage. The traps have to be cut out under use of the spray, and the edges of these traps secured with antiseptic cotton wadding. At the application of the bandage, the room for the traps is to be filled out with folded tampons of Lister's gauze, and this again covered with small antiseptic bandages. Under such a most carefully applied bandaging, says Volkmann, we succeeded to maintain the aseptic progress of the wound in a large number of osteotomies, in an equal manner and with an equal good result.

In gypsum bandages with large traps, or in divided gypsum bandages, the antiseptic dressing is executed in the known method, only that the edges of the traps are furthermore surrounded with benzoic or salicylic wadding.

In the preceding exposè, I have tried, gentlemen, to make you acquainted with a method of treatment, which Volkmann says, will avoid the dangers of the most severe injuries, with an almost absolute certainty. With this security, it combines the advantage of a perfect freedom of pain and the greatest cleanliness. It excludes all odor, prevents the bed clothes from being soiled, and prohibits the dangerous diseases which in hospitals, overcrowded with wounded, are so frequently produced. The bandage needs but rarely to be changed, and therewith the labor in large hospitals becomes diminished to a great extent. The attending surgeon, after the lapse of the first few days, when the aseptic process has become initiated, need not watch further with anxiety about any occurring collisions which, under common treatment, may happen at any time. Finally, the time of the lasting sickness will be considerably shortened, and the injured remain at the hospital only one-third of the time which under a non-antiseptic treatment would be required.

Notwithstanding all these advantages of this method of treatment, it is nevertheless accompanied by many inconveniences. The relative high price of the bandage material certainly does not come much into question. By the shortening of the time which a cure affords, and by the diminished labor of the surgeon and the attending nurses, this will be compensated for sufficiently. But the method itself affords a cleanliness "pedanterie" and practice, which not every man may acquire. On account of these obstacles it is certainly desirable, that the progressive

science might succeed in finding for it a substitute less complicated, less expensive, but equally as secure and certain in its action.

So far all experiments, acceptable and important as they may be, have been unsatisfactory. None of the novel antiseptic methods for the treatment of wounds, which have been regarded and recommended as substitutes, have proved to offer an equal security as the carbolic gauze bandage. Although the methods of Bardeleben, Thiersch, Angelo Minich, and the bandages with salicylic, benzoic acids, and hyposulphide of soda, have accomplished more than the former and older known treatments, and the more it may be our duty to recur to them where Lister's bandage, on account of external causes, cannot be made use of in its rigorous form, in regard to their protecting properties, they are not by far equals of Lister's method, but most assuredly far its inferiors.

To these, the closing remarks of Volkmann in his valuable contributions, I may most appropriately add his *specified results*, obtained under the antiseptic treatment of Lister, and delivered by him on the last meeting day of the Congress of Surgeons at Berlin, in September, 1877.

"It is by the fruit that we are to recognize the tree." Volkmann related the following severe injuries and capital operations, which had occurred during the last three years in the stationary and Polyclinic of Halle from 1st of March, 1874, to 1st of March, 1877, and were treated with the antiseptic method. He calls his statements incomplete, in so far as there were left out in the tableau a great number of other operations, as for instance, the ligations of arteries, the extirpation of tumors, operations comprising the opening of the abdominal cavity, severe injuries of the hands, etc.

The number of patients treated during these 3 years amounted to nearly 10,000, and the number of the greater operations and treatment of more severe injuries, was considerable over 1000.

A. Of *amputations* and *exarticulations in uncomplicated cases*, were performed 139. Of these only 4 died. One exarticulation of the thigh died 4 hours after the operation. One exarticulation of the humerus died also 4 hours after the operation, of an extensive traumatic injury. One amputation of the thigh died 24 hours after the operation, from extensive lacerations of the in-

teguments. One amputation of the leg died of habitual erysipelas. These 4 deaths give a mortality of 2.87 per cent.

B. Of *complicated cases*, Volkmann mentions here 9 double amputations, with 2 deaths. One had both thighs amputated, and died a few hours later. The other had also both thighs amputated, and died of collapse on the 3d day, although the wound had become aseptic.

Of severe multiple injuries of head, chest, abdomen, there were 6, which all died. Of 15 cases which were admitted already with pyæmic and septicæmic fevers, 8 died, after suffering amputation. (This would give a mortality of 52.33 per cent.)

Besides these, there were 3 deaths recorded from intercurrent diseases, i. e., delirium tremens, puerperal pyæmia, and pneumonia.

183 amputations and exarticulations were performed in 173 patients. Of these, 149 patients were cured with 156 amputations, and 23 patients died with 27 amputations performed upon them.

Resections of Joints.—A. *Uncomplicated cases*, 91, with only 5 deaths, 4 of these comprising the hip-joint, of small, sickly children; the whole number of resections of this joint amounted to 48. The 5th death took place out of 21 resections of the knee-joint (only one death of 21 resections of this joint!!), and only 2 of that number had to be amputated at a later period, yet both recovered. The one death, of that number 21 was caused by a meningeal tuberculosis, 3 weeks after the operation, without having any relation to the wound.

So far as I have given here, gentlemen, the enumeration of the results of operations under the antiseptic treatment, this would be sufficient to prove the immense importance of the method; that complicated cases, patients suffering already with pyæmic and septicæmic fevers, did not give favorable results, need hardly be wondered at.

Resections in the continuity of bones were performed in 10 cases, without one death following. In 50 *osteotomic operations* performed in 38 patients, only one death occurred, the patient being a hæmophilus, who bled to death. (His condition was unknown previous to the operation.) 116 cases, with 6 deaths, were *amputations of the mamma.* Of the number 116, were 75 in which the axilla had been completely excavated. One death

of this number deserves to be mentioned, as it is stated that the woman died from a pustula maligna, caused by vaccination from the catgut used. The catgut must evidently have been prepared from a diseased animal, and not thoroughly carbolized.* Most of the 5 other deaths were caused by collapse, happening in old decrepit women. The tableau contains further 45 *operations for hydrocele*, all performed by incisions, all cured and none died. Of the more rare *compound fractures* conservatively treated, I have already given the number on preceding pages. There were 75 in 73 patients, of which number not a single death had to be recorded, 8 of which number being intermediate amputations, none of that number dying.

Penetrating wounds of joints also treated conservatively amounted to 24; all were cured.

Of *accidental wound diseases*, metastatic or simple pyæmia, not a single death is recorded, amongst those operated upon by Volkmann, during these 3 years.

These statements are subscribed by R. Volkmann and Paul Ranke; Volkmann declaring himself ready to give any further information requested.

Gentlemen: although these numbers prove more and better than words, the great and valuable acquisition surgery has made in incorporating Lister's antiseptic method, there is yet one impediment in the way of its general adoption.

I have referred in the previous pages to a statement of Volkmann, that it had taken him nearly one year, before he had become thoroughly qualified and able to master the difficulties of this treatment, and that he has given it as his opinion, that some might never attain that requisite proficiency and necessary perfection.

At the same meeting of surgeons, at Berlin, mentioned above, another accomplished surgeon, my friend Kœnig, Professor of Surgery at Göttingen, has been calling the attention of the profession to the danger originating from trusting the antiseptic treatment to the hands of the general professional public. Kœnig raises the alarm bell in surgery, that we ought to be

* I again call the attention here to what I have already once remarked, that in a mixture of carbolic acid and oil (and in such we find the catgut preserved), the efficiency of the carb. acid is destroyed if not present in the mixture in a large quantity, at least 2 to 1 of oil.

careful and use great circumspection in introducing some operations into the general surgical practice, operations which, although under the proper management or the antiseptic method and in the hands of skillful antisepticians, would promise good results, yet in the hands of the not thoroughly instructed and qualified would be associated with great risks. Though Volkmann had but one death in 21 resections of the knee-joint, how would that number have changed, if the operations had been performed by a less skillful hand and under an incomplete antisepsis? That therefore the greatest boon of the century shall not become a curse, let the surgeon beware that in undertaking a dangerous operation, he first fully initiates himself in all the particular parts of that complicated method. In a diseased knee-joint, which affords an operation, it would under circumstances be less risky to perform an amputation, than a resection with a defective antisepsis, gratifying and desirous as it would be to preserve the limb, if it could be done without endangering the life of the patient.

Of the care to be taken in selecting, amongst different operative proceedings the proper one, I will give here a paradigma: In the forcible correction of the position, in a genu valgum in children, under the chloroform narcosis and an immediate placing of the limb in a gypsum bandage, we have an excellent method, and if repeatedly executed, a final cure will be established, small though the improvement of each single bandage may be. A rupture of the external ligament hereby is preferrable to Langenbeck's subcutaneous discision, by which an opening of the joint cannot be avoided. In an extensive developed genu valgum after the bones have ceased to grow, Oyston's operation may be preferable, because in a failure, a resection can yet be undertaken, and a straight though ankylosed limb be secured; but such a result can only be expected under a proper antiseptic treatment. In an osteotomic operation, by the excision of a wedge-shaped bone, a good result may also be obtained, yet under the same premises of a thorough antisepsis. In a failure, on the other hand, nothing but the amputation would be left. The reason why I have discussed this matter, apparently foreign to the subject under consideration, is obvious. It is to prove the necessity which arises to the surgeon, before he undertakes an important operation, in which he intends to rely on the protec-

tive qualities of the antiseptic treatment, first, to inquire into his competency, if he is able to command the services of the antisepsis.

Gentlemen—In the foregoing I have given you the material of the antiseptic method in an exhaustive manner, and it is my sincere belief, that in the present state of our knowledge, and so far as our experience extends, better results than those obtained by Volkmann can hardly be expected, whatever alterations of the present treatment the future will bring us. If Lister's antiseptic treatment of wounds has to be considered the greatest improvement in surgical practice of the 19th century, saving thousands of the human race from great suffering and an abrupt, untimely death, if this boon will surround the name of Lister with an imperishable lustre, this monument of human ingenuity and perseverance ought also to give its proper due to the celebrated surgeon of Halle, who by his ability, acuteness and intelligence, made this treatment mainly a verity, and did so much by his contributions to enlist the attention of the profession to the method of Lister. To Volkmann, more than to any other man, belongs the merit of having caused the general adoption of the antiseptic method, and this may be my defence, if I should be accused of partiality, in having so extensively quoted from that surgeon. Another objection might be raised, that of having committed too many repetitions. I am myself conscious of this, but if in a matter of so great an import, this will be considered a fault, I will rather suffer the reproach of commission than of omission, recalling to mind the old aphorism, "repetitio est mater studiorum."

After I have enumerated the great results Volkmann obtained under the antiseptic treatment, it would be ridiculous on my part if, in the enumeration of cases treated by me with the antiseptic method, I intended more than to give some of the facts, of which I have elicited the lessons given above, and furnishing the proofs of my having mastered the difficulties of the treatment. If I have committed faults and neglects, and how could I deny it, fortunately neither I nor others had to suffer for it, and though with all modesty I might point to the general excellent issue of the cases treated by me, I may by right lay claim to the earnest desire I have always faithfully shown, to observe and to follow the rules and regulations laid down by my superiors in practice, with the almost punctility, accuracy and pedantry, even where

I thought that one or the other point might have been altered, or omitted. And this advice, gentlemen, I will lay to your heart, to follow, the more so in a method of such an empirical character, exactly the rules laid down in this contribution with the utmost punctility, if you will not have to reproach yourself, in case the result should not be as you had expected. It is human weakness of belittling things, criticising the acts of others, thinking that we could do better than those far our superiors in knowledge and experience. If this is a great fault, even with men, who may lay claims to the accomplishment of a riper age, how far more ought it to be reprimanded in the young, who have not quite got rid of the shells of the egg out of which they have just crawled.

In undertaking an operation with all the prospects of a good result, we will have to traverse its whole field in advance, to think of every accident which might happen, to be prepared for any emergencies. Nothing is more annoying and humiliating, than in the midst of an operation, to be reminded, that we had forgotten to provide for certain instruments or utensils. If the success of an operation depends, then, in a great extent, upon the foresight, the preliminary steps taken, how much more will we have to be prepared in an operation, under the protecting folds of the antiseptic treatment. The latter, more than any other, affords a rapid manipulation, if success shall crown its results. In the application of the antiseptic method the *cito, tuto et jucunde* have again come to its appreciated merits, whilst they were already in danger of becoming obsolete under the chloroform narcosis.

In this the closing chapter, I will give a general enumeration of my operations performed under the antiseptic method, and select only such cases for a more minute description, which I consider to possess some intrinsic value, or of deserving to attract professional attention.

Amputations: 21 *Cases with* 23 *Operations.* One case was amputated a second time, on account of the mechanic's inability to make a proper artificial leg; in another both legs were removed. Not a single death had to be recorded. All were cured, the majority by first intention, some without any subsequent fever, or a drop of pus occurring.

The amputations were as follows:

A.—Of the humerus,	2.		
" forearm,	3.		
" fingers,	5.		
" thigh,	5;	{	one in the upper third, 2 in the middle, 2 of the lower third.
" leg, -	4;	{	in one case both legs amputated below the knee.
" toes, -	1.		
" penis, -	1.		
Total,	21 with 23 operations.		

Resections. 17 cases, with one death from pyæmia multiplex, after an osteotomic operation of the femur, and one case dying from phthisis pulmon. unconnected with the operation—the latter happened in a partial resection of the tibia. The resections were as follows:

Resections of	upper maxillary (half),	2.
"	" lower maxillary (partial),	2.
"	" ribs, - - -	1.
"	" head of humerus, -	2.
"	" elbow-joint, - -	1.
"	" hip-joint, - -	5.
"	" femur (partial), -	1, (died.)
"	" tibia (partial), -	3; in one case nearly the whole tibia was enucleated; one case died of phthisis pulmonalis.

Of *shot* and *stab wounds*, penetrating cavities of chest and abdomen, 6 cases, of which one died.

Shot wounds	penetrating abdomen,	2 cases (one death).
Stab wounds	" "	3 cases.
" "	" chest,	1 case.

All recovered but one.

Extirpation of *tumors* on *head*, *face*, *neck* and *chest*, 17 cases, with one death following an extirpation of cervical lymphatic glands, nearly two weeks after the operation.

Wounds, *incised*, more or less extensive, 34 cases; all recovered; amongst them 5 laryngeal and tracheal wounds, most all healing by first intention, or little suppuration.

(*To be continued.*)

CURRENT MEDICAL LITERATURE.

DEMENTIA BROUGHT ON BY EXCESSIVE SELF-ABUSE—CURE BY INFIBULATION.

A young, squarely-built German, twenty-two years of age, and of medium size, was brought to my office for treatment. A mere passing glance disclosed his demented condition. He had just then been removed from the Bloomingdale Insane Asylum, of which he had been an inmate for the second time.

At no time a very bright or noticeably intelligent boy, rather slow at learning, nevertheless, he had climbed up to the second class of the common school of New York, and then entered the grocery business as an apprentice, and given, for some time, moderate satisfaction. Though not exactly quick, he had been docile, orderly, attentive, and good-natured to both his employer and customers. His memory had been fairly retentive up to the age of about eighteen. Thenceforward he had notably changed in every respect, turned sullen, careless, disorderly, discourteous and thoughtless. If not pressed to do some work, he would stand brooding, and pay no attention to anything going on around him; would retire early and rise late; pass an unusually long time in the water-closet; forget the most common duties; the places where he had put goods, and recollect hardly what he had done an hour before. Thus becoming useless to his employer, he received his discharge.

At the house of his mother or his brother-in-law, with whom he alternately resided, he showed the same indifference and passivity and became so slovenly in his corporeal habits as to be a nuisance to others.

It was impossible to engage him in any conversation or interest him in the common affairs of the family. Usually he would stare at vacancy, and when addressed would answer in monosyllables like a child, preferring to be left alone. He evinced, however, no disposition to be burdensome by the commission of any vicious act, and at no time became angry. The appetite was always good, rather voracious, and he did not complain of anything.

Several physicians were successively consulted. Besides purgatives, of which he stood in need, they unanimously advised that he should be placed in a lunatic asylum, which was eventually done. But no change for the better took place there, on the contrary, all the symptoms seemed to grow worse.

It was by the advice of Dr. Brown, the superintendent of the institution at the time, that the patient was taken to the country and placed in charge of a farmer, but to no purpose. He would not take a hand in the farm-work, and became worse in every

respect. After the family had unsuccessfully tried their influence again, he was once more taken to the asylum.

A few days previous to my seeing the patient, the Superintendent had sent for some one of the family and informed him that the patient had been detected practicing Onanism whenever he was alone. It was advised that he should be removed for greater vigilance than could be bestowed upon him at the asylum.

There being no apparent causation, either hereditary or acquired, other than self-abuse, I determined to test the efficacy of infibulation upon Onanism, thus rendering it, at least, a very painful affair.

The patient submitted passively to the operation and bore it stoically without a sign of pain. In the absence of anything better I perforated the prepuce by a trocar on two opposite places, introduced through the wounds two pewter sounds, No. 2, and twisted them together like rings. At the same time I ordered aperient pills and reduced diet.

The succeeding swelling and tenderness effectually debarred the patient from indulging in his bad habits, and he commenced to complain of pain. On the eighth day after the operation, the swelling was very great and the patient exhibited marks of bodily suffering. He implored me to remove the rings. There was obviously improvement. The patient commenced to realize his condition. He was, however, still so idiotic as not to adopt the remedy of simply untwisting the bougies and thus relieving himself. On the eleventh day I removed one of the rings, leaving the other *in situ*. On the sixteenth day I introduced a new ring at a new place, withdrawing, however, the old one. Thus I continued for nearly eight weeks to keep up irritation of the prepuce, and to prevent the patient from indulging in masturbation.

Inasmuch as I saw the patient every second day, I had ample opportunity of noticing the steady improvement in his mental condition. At the end of the second month the patient again came to my office, informing me that he was now well, and that he had that day secured a position as clerk in his old business. "You may now set me free, and remove the metal rings, for I shall not resume my old habits which have brought me to the verge of destruction." I did so, but for many months following I kept an eye upon my former patient. He continued to exhibit the external signs of health, physical and mental.

The publication of this case was prompted by its own intrinsic interest as a remarkable exception to the rule drawn from experience, and in answer to a question* raised privately at the convention of the superintendents of the insane asylums of the

* "What are the best means of preventing masturbation among the insane?" This question was not under discussion at any meeting, but was the subject of some private conversation among the superintendents present.

United States lately convened in St. Louis.—*St. Louis Clinical Record.*

INTRA-UTERINE INJECTION OF HOT WATER IN POST-PARTUM HÆMORRHAGE.

Dr. Runge gives the account* of the results obtained by Professor Gusserow, of Strasburg, by the use of hot-water injections in cases of post-partum hæmorrhage. The cases cited are seventeen in number. Ten of the patients were the subjects of simple post-partum hæmorrhage, and in seven the hæmorrhage followed an abortion or a labor after which portions of the placenta had been retained. The instrument used was usually an irrigator, although in some of the cases an ordinary syringe was employed. The temperature of the water varied from 118° to 125° F. In two out of the ten cases of simple hæmorrhage the effect of the injection was remarkable and prompt, although the usual remedies employed in such cases had been first tried without avail. In five of the cases this was the only treatment used, and with immediate relief. In two of the cases the result was doubtful, and in the last case no result followed, although the injection was continued for half an hour. As regards the hæmorrhage arising from retained portions of the placenta, there was no effect from the use of the hot water until the placenta fragments had been removed. The injection of the water did not seem to hasten the uterine contractions.

The great advantage which seemed to favor the use of hot rather than cold water for injections in such cases is that, instead of abstracting warmth from the body, which is greatly needed in many of these cases, we are really adding to the amount of the animal heat of the patient. In all these cases it was noticed that the uterus did not become as hard and consequently not as small as after a normal birth. Carbolic acid may, of course, be added to the water if desired.—*Boston Medical and Surgical Journal.*

A QUACK ROUTED.

(Extract from Proceedings of the Connecticut River Valley Medical Association.)

An interesting feature of the meeting was the interference of the society with the business of a notorious quack, who had lately arrived at Bellows Falls, and was receiving fees of fifty dollars from many a hopeful patient. His advertisements flooded neighboring villages. When waited upon by an attorney, under

* Berliner klinische Wochenschritt, March 26, 1877.

the direction of the association, and informed that he was violating the statutes of Vermont against irregular practitioners of medicine, he asked the privilege "to rise and explain" before the association, which privilege was granted. There he expressed a desire to appear before a state censor for an examination. Accordingly, a censor present gave him a private examination, which a reporter immediately made public to the prosecuting body, much to their merriment. The committee appointed to prosecute had little to do, as the next train bore the impostor to other and more congenial fields for his nefarious work.—*Boston Medical and Surgical Journal.*

THE PATHOLOGY OF CONCUSSION.

A new light has been thrown upon this obscure question by the experimental investigations which M. Duret, already so well known for his careful anatomical and experimental researches on the nervous system, has recently laid before the Société de Biologie. A mere oscillatory disturbance of the encephalon is not a satisfactory explanation of the loss of consciousness and the cardiac and respiratory troubles which supervene after a violent blow on the head; and it is contrary to what we know of the physical and physiological condition of the encephalon to believe that such oscillations could be so slight as to produce such marked disturbances of function without effecting at the same time some anatomical alteration. Blows on other organs do not alter their functions without leaving traces of structural change. In his experiments on animals, M. Duret was able to reproduce the symptoms of concussion in the human subject in all its degrees of temporary loss of consciousness with slow respiration and slow pulse, greater duration of the same phenomena, and, lastly, sudden death. As blows upon the head produced results difficult to analyse, he proceeded by making a small opening in the cranium by means of a perforator, and injecting various fluids through this. Sometimes he used water, sometimes coagulable substances, such as gelatine. As experiments upon the cerebral hemispheres proper have shown that these may be removed in almost their entire extent without producing the cardiac and pulmonary symptoms of concussion, he was led to expect that the medulla was the part in which the lesions, if any, would be found. By injecting a large quantity of fluid, he succeeded in bursting the fourth ventricle and tearing up the aqueduct of Sylvius; and, as the same result followed the injection of a coagulable fluid which could be traced, he was able to demonstrate that the effect was due to the tension of ventricular fluid. By cutting away the cervical muscles, the occipito-atloidean membrane may be laid bare, and its respiratory pulsations watched or recorded by the graphic method.

When fluid was injected into the cranial cavity, this membrane became tense, pulsation ceased, and all the clinical phenomena of a shock manifested themselves; but, on perforating this membrane with a bistoury, an escape of cerebro-spinal fluid was followed by the disappearance of all the symptoms. In addition to these results, M. Duret was able to discover numerous small hæmorrhages in the substance of the medulla, and in the subarachnoid spaces, principally at the base, but also over the convexity of the brain. He confirmed these results by directly operating upon the medulla by means of a sound introduced through a small opening in the occipito-atloidean membrane, with which very limited contusions of parts of the medulla and the floor of the fourth ventricle could be caused. According to these experiments, therefore, it is to changes in the tension of the cerebro-spinal fluid, and not directly in the cerebral pulp itself, that we should refer the phenomena of concussion.—*British Medical Journal.*

LIQUEFACTION OF OXYGEN.

Students of chemistry will be interested by the following telegram from Professor Pictet, of Geneva, which was received this week by Professor Tyndall: "Oxygène liquifié samedi par acides sulfureux et carboniques combinés. Pression, 320 atmosphères. Temperature, 100 deg. Centigrade de froid." Hitherto all attempts to liquify oxygen have failed.—*British Medical Journal*, December 29th, 1877.

REVIEWS AND BOOK NOTICES.

A Guide to Therapeutics and Materia Medica. By Robert Farquharson, M.D., Edin.; F.R.C.P. Lond., Lecturer on Materia Medica at St. Mary's Hospital Medical School, etc. Enlarged and adapted to the U. S. Pharmacopœia, by Frank Woodbury, M.D., Member of Academy of Sciences, Phila., etc. Pp. 374, 12mo. H. C. Lea, Philadelphia. Geo. Ellis, New Orleans.

This work supplies a want long felt of a book of small size, containing all the essentials of materia medica, but without being burdened with botanical or pharmaceutical details. The author has bestowed much labor on the production, and has drawn freely from standard works on therapeutics. What strikes us as being exceedingly useful in the work, is the plan adopted of com-

paring the physiological with the therapeutical action of each drug; this object is carried out by arranging these in corresponding columns in diagramatic form.

After a chapter introducing the subject to be treated of, and general rules for combining and administering drugs, the work is divided into three sections.

Section first treats of the classification of remedies.

Section second: remedies comprised in the primary list of the United States Pharmacopœia, and their preparations.

Section third: remedies in frequent use but not included in the primary list U. S. P.

The alphabetical arrangement of the remedies we consider as very advantageous. In every instance where a drug is known to possess merit, it is very thoroughly considered, and its therapeutic action skillfully mapped out for the reader. At the latter part of the book, a list of questions in therapeutics is appended; they are exceedingly interesting, but some of them are very vague.

Besides the table of contents, there are two indexes—one of diseases and their remedies, and a general index.

We recommend this work to the profession. The publisher has expended taste and skill in its production.

Handbook of the Practice of Medicine. By M. Charteris, M.D., Professor of Practice of Medicine, Anderson's College, Glasgow, and Physician and Lecturer in Clinical Medicine, Glasgow Royal Infirmary. With illustrations. Pp. 325. Philadelphia: Lindsay & Blakiston; 1878. Crescent Book Subscription House, 112 Carondelet street, New Orleans, La.

This work constitutes the first of the "Students' Guide Series," and its object is fully set forth in its title. Now, however "handy" such books may be, we consider that the student had better be without them, as they tend to narrow his views in regard to diseases, and cultivate superficial information, only, on subjects the close investigation of which is essential to accurate knowledge. The author begins his work by considering diseases in general, and gives some very useful hints in regard to the clinical investigation of disease.

The next subject considered is fevers, and the author rapidly leads the student to the consideration of typhus, typhoid, relaps-

ing, malarial, and eruptive fevers, the space occupied in their consideration being thirty-eight pages. Nothing new is presented to the consideration, and hints of pathology, symptoms and treatment, are sometimes too obscure to be appreciated by the student.

From the consideration of fevers the author rapidly leads us to the investigation of other diseases, and to the consideration of many he devotes less than a page. It is not astonishing, then, that few affections are omitted. The volume closes with several pages of formulæ. Many of the prescriptions are of the old stereotyped character, good and useful; others are especially noticeable for their judicious combinations. The work is handsomely printed and bound.

The Science and Art of Surgery: being a Treatise on Surgical Injuries, Diseases and Operations. By John Eric Erichsen, F.R.S., F.R.C.S., Surgeon Extraordinary to Her Majesty the Queen; Emeritus Professor of Surgery and of Clinical Surgery in University College, etc. Revised by the author from the seventh and enlarged English edition. Illustrated with eight hundred and sixty-two engravings on wood. Two volumes, pp. 960 each. Philadelphia: published by H. C. Lea. New Orleans: Geo. Ellis. Price, sheep, $10 50.

The simple announcement of another edition of this valuable work will be sufficient recommendation. Erichsen has stood so preëminently forward for years as a writer on Surgery, that his reputation is world-wide, and his name is as familiar to the medical student as to the accomplished and experienced surgeon. His teachings are so generally adopted, that the present edition can hardly increase his reputation, but will only serve as proof that his ardor has not cooled, nor his energy abated, in bringing the teaching of the art up to the most recent date. The work is not a reprint of former editions, but has in many places been entirely re-written. Recent improvements in surgery have not escaped his notice; various new operations have been thoroughly analyzed, and their merits conscientiously discussed. The descriptive powers of Mr. Erichsen are vast, and we consider one of the most important features of the book to be the remarkably clear, terse and vigorous display of symptoms pointing to obscure surgical diseases. One hundred and fifty new wood-cuts add to the value of this work.

If Mr. Erichsen has achieved enviable reputation in any special branch of surgery, it is in his studies on aneurism. The subject has been superbly handled in all editions of his work, and in the present volume is the most thorough article on the subject, probably, in the English language.

The publishers of the American edition of this work have admirably performed their task, and the volumes bespeak the skill and taste of the popular publishers, H. C. Lea & Co.

Meteorology in the Service of Medicine. An Address delivered before the Austrian Meteorological Society. By Dr. J. Schreiber, Lecturer on Climatology in the Vienna Faculty. Pamphlet, pp. 12. Translated by W. H. Geddings, M.D., of Aiken, South Carolina.

We thank Dr. Geddings for putting into pure classic English this most excellent and instructive lecture. The author has evidently made himself master of all that has been written concerning "health resorts," and endeavors, with German painstaking analysis, to ascertain, if possible, whether the diminished atmospheric pressure of high altitudes, absence of humidity or equability of temperature, are individually or collectively essential to a good sanitary condition. He takes up these several points separately, and discusses them in the light of well established facts, with brevity but great clearness, and finally comes to the conclusion that the term "climatic," which has been hitherto employed to denote a vague indefinite specific of which no rational account could be given, appears now as something infinitely clear and very simple, being in fact nothing more than pure air, uncontaminated by miasma, with no organic or inorganic substances, and one in which meteoric precipitation (rain) is not unduly deficient."

The old saying, that "one must go away from home to hear home news," is here fully verified by the following paragraph.

"Yellow fever is caused, as has been demonstrated, by the inhalation of the spores of an alga which grows in the Gulf of Mexico. This fever never occurs at an elevation greater than 2000 feet above the sea level, at which height the spores probably cease to find a temperature sufficiently high to sustain their vitality. For the same reason, the fever appears only during the warmer months of the year."

We should like exceedingly to know the facts upon which the

accomplished author, who, be it remembered, lives away off in the centre of Austria, bases the first of these three assertions. It is certainly new to all who live upon the borders of the Gulf of Mexico, some of whom have been studying the subject for nearly half a century. We need scarcely say to our readers that no such *demonstration* has ever been made; and that even as a mere supposition, no such speculation is worthy of serious consideration, in as much as it cannot explain the almost annual occurrence of yellow fever in its most virulent form at Buenos Ayres, and Rio de Janeiro, not to mention particularly its appearance at Callao, Peru, on the coast of the Pacific, cities from one to two thousand miles south of the lowest limit of the much slandered gulf, and out of the track of ocean currents from that quarter.

The second statement is one that has been repeated so often, that it is difficult to ascertain its source. It seems, however, to have originated with Humboldt, a hundred years ago. That it is not true, the writer of this notice has abundant proof, inasmuch as he was present, in the year 1875, during an epidemic in the town of Cordova, Mexico, whose altitude is 2713 feet (level measurement) above the sea. Similar epidemics have occurred at the same place, notably one in 1866, and a very severe one in 1876.

The last assertion, that yellow fever prevails *only* during the summer months is, unfortunately almost as erroneous as the two preceding, as some of the interior towns of Texas know to their sorrow.

EDITORIAL.

Survival of the Fittest.

The February issue of the *Chicago Medical Journal and Examiner* contains an exceedingly interesting and sober disquisition under this caption. But the question of survival herein discussed, is not of individuals of some special race, but of individual members of a profession—of doctors in their great struggle for existence and success. The writer argues that there is an excessive proportion of medical persons in this country, and that this excessive ratio is maintained through the competition existing among medical schools, and the cheap and facile methods some of them adopt in bestowing degrees. But the writer urges

that good will ultimately arise from this condition of evil, in the fact that in the medical profession, as among races of the natural kingdom, there is a natural selection of the fittest. His language is worth repeating.

"The selfishness of the human family is the key-stone of commerce and civilization, and the selfish instinct of the corporations we call medical schools will in the end produce a body of medical men in this country that have never been equalled, and never could have been graduated from universities depending upon endowments. A desperate struggle for existence will soon, if it does not already, await each candidate for professional success, and in that struggle only the fittest will survive. He who can best cut for stone, treat a fever, or deliver a woman in perilous travail, will surpass him who cannot do these things as well. And, again, in every community, of those capable of doing these things equally well, he who has the broadest education, the best trained intellect and the most correct judgment will bear the palm. It is said that 'blood will tell,' and so, indeed, in the long run, will education, training, skill, hospital experience, and fertility of resources in emergencies. They will tell in the struggle for professional existence. Let no man suffer himself to become blind to his deficiencies in these matters."

This is all well enough, but would it not be yet better, we modestly enquire, if, in those ranks who are supposed to be warring with each other for existence, there were *not* a great number of professional runts, whose overthrow affords but little evidence that their rivals were of the fittest? If the average stature of our professional race were higher, what still more noble fellows our Sauls would be!!

Lectures upon Pathology and Histology at the Charity Hospital.

The Vice President of the Board of Administrators of Charity Hospital, requests us to announce that Dr. D. H. Schmidt has been elected Pathologist to that Institution, and that he will deliver lectures twice weekly on the subjects specified. The hours are not yet fixed. The lectures will be free to physicians and students.

NECROLOGY.

Prof. A. H. Cenas, M.D.

Resolutions of the Medical Faculty of the University of Louisiana, in regard to the death of Prof. Augustus H. Cenas, M.D.,

Emeritus Professor of Obstetrics and Diseases of Women and Children in that Institution:

Resolved, That in the death, on January 10th inst., of Prof. A. H. CENAS, M.D., this Faculty has grievous cause to deplore the loss to this State of one of its most cultivated, honorable and worthy citizens; the loss to society of a gentleman adorned with the graceful manners, the courteous charity, the chivalric sense of honor which conferred upon it dignity and lustre; the loss to the profession of a physician eminent for his practical skill, love of learning and devotion to its noblest interests; the loss to medical instruction of a teacher distinguished for his fidelity, zeal and efficiency; and the loss to the Medical Department of the University, of the last one of those professors who aided in its foundation.

Prof. CENAS, hand in hand with his famous colleagues, Profs. Hunt, Harrison, Luzenberg, Riddell, Stone and Jones, assisted, in 1834, in organizing this, the oldest institution for scientific culture in the Southwest—an institution which they rendered, in 1861, the third in importance of its kind in the United States, and thus by their successful labors in founding a medical college, and by their exalted public spirit, gave birth to the University of Louisiana.

T. G. RICHARDSON, M.D., *Dean.*

Death of Dr. L. G. Capers.*

The regular physicians of Vicksburg and Warren county met at the office of E. T. Henry, M.D., for the purpose of taking action relative to the death of their friend and confrére, LeGrand G. Capers, M.D.

The meeting was organized by calling P. F. Whitehead, M.D., to the chair, and requesting H. Shannon, M.D., to act as Secretary.

Upon motion, the Chair appointed Drs. Henry, Robbins, Barnett, Nesmith and Shannon, a committee to prepare resolutions expressive of the sentiments of the meeting.

On motion, it was resolved that these proceedings and the resolutions of the committee be published in the city papers, in the "American Medical Bi-Weekly," and "New Orleans Medical Journal," and a copy be furnished to the family of the deceased.

On motion, the meeting adjourned.

P. F. WHITEHEAD, M.D., Chairman.
H. SHANNON, M.D., Secretary.

Vicksburg, December 4, 1877.

* The copy of the above notice designed for publication was not received. We reprint it from the "American Medical Bi-Weekly."—EDITORS.

REPORT OF THE COMMITTEE.

Resolved, That in the death of our confrére, Dr. LeGrand G. Capers, we realize the loss of a much-esteemed friend and associate, and an honored member of our profession. Endeared as he was to us by those noble qualities which adorn only the best of our kind, we mourn his loss as a bereavement touching our warmest affections. Stricken down in the glorious noon of his manhood, while his heart was so full of eager hopes, and whilst yet life's dreams were all so golden, we find it hard indeed for finite minds to acknowledge the justice of the decree that has thus extinguished in death a life which was so full of promise. We have only this sad realization left to us, that a warm and generous heart has been stilled by the withering touch of the "dark-winged angel, Death," whilst we must bow in humble submission to the will of that God who, "doing all things well," has seen fit to call him hence. Whether as Assistant Surgeon in the Old Army,† or as Surgeon in the Confederate Army, or as teacher in the New Orleans School of Medicine, or in his intercourse with his professional brethren in private practice, Dr. Capers was ever the same high-toned, honorable gentlemen, eminently skilled in his profession, rigidly adhering to the letter and spirit of the "Code of Medical Ethics," his every action was characterized by that chivalrous devotion to the honor of his profession for which he had ever been distinguished.

Resolved, That we tender to the bereaved family of our deceased friend our sincere sympathy in this, the hour of their deep affliction and irreparable loss.

E. T. Henry, M.D.
Harvey Shannon, M.D.
J. R. Barnett, M.D.
W. J. Nesmith, M.D.
S. D. Robbins, M.D.

† Error.—Ed. (Bi-W.)

1803 Lundsford Pitts Yandell, Sr, 1878.

It becomes our sad duty to record the death of Dr. L. P. Yandell, Sr. Known as he was personally to many of our readers, and by reputation to all, they will receive the announcement sorrowfully.

Dr. Yandell died upon the morning of February 4th, after a short illness with pneumonia. He was born July 4th, 1803, and was consequently in his 75th year when he died. He was a native of Tennessee, born near Hartsville, Sumner County. He was the son of Dr. Wilson Yandell, a native of North Carolina, and an eminent practitioner in his day. Dr. Yandell attended

his first course of lectures in the Transylvania University at Lexington, his second course in the University of Maryland at Baltimore, where he graduated in 1825. In 1831 he was called to the Chair of Chemistry in the Transylvania College, which position he held for six years, when (1837) he came to Louisville and assisted in the organization of the Medical Institute, which subsequently became the medical department of the University of Louisville. He filled at different times in this institution the chairs of Chemistry, Materia Medica, and Physiology. Associated with him in the faculty of the University were Caldwell, Miller, Drake, Gross, Austin Flint, J. B. Flint, Cobb, Bartlett, and other celebrities in American Medicine. He continued in the University until 1858, when he removed to Memphis, Tenn., and for a year or so was professor of practice in a medical school which was attempted there. During the war he was for awhile in the hospital service of the Confederacy. In 1862 he was licensed to preach by the Memphis Presbytery, and for awhile was pastor of a church in Dyceton, Tenn. Returning to Louisville after the war, he has resided here ever since.—*Louisville Medical News*, February 9th, 1878.

Dr. Edmund Randolph Peaslee.

Dr. Edmund Randolph Peaslee died on January 21st, at the age of sixty-three years, of pneumonia, contracted by exposure resulting from unusually pressing professional engagements. He was born in Newton, N. H., was educated at Dartmouth College and graduated in 1836. He graduated from Yale Medical College in 1840. During the following year he began the practice of his profession at Hanover, N. H., and also commenced the delivery of a series of lectures on anatomy and physiology at Dartmouth College. He became a professor of those two branches in 1842, and continued to hold that chair until the year 1870. In the year 1843 he was appointed lecturer on anatomy and surgery at Bowdoin College, and was professor of these branches of education during the period from 1845 to 1857, when he gave up anatomy, but continued to act as professor of surgery until 1860. Dr. Peaslee was appointed professor of physiology and general pathology, in the year 1851, at the New York Medical College, and from 1858 to 1860 he accepted the professorship of obstetrics in the same institution. He was elected professor of gynæcology at Dartmouth Medical College in 1872, and at Bellevue Hospital Medical College in 1874. He practiced seventeen years in Hanover, and subsequently in New York. He published a work on Human Histology, and also one on Ovariotomy. His distinguished services in his specialty and his skill as an ovariotomist are well known.—*Boston Medical and Surgical Journal.*

METEOROLOGICAL AND MORTALITY REPORTS.

Meteorological Report for New Orleans—January.

Day of Month.	Temperature.			Mean Barometer Daily.	Relative Humidity—Daily.	Rain fall—inches
	Maximum.	Minimum.	Range.			
1	53	42	11	30.176	55.33	.00
2	57	45	12	30.151	57.33	.00
3	63	44	19	29.871	76.33	.00
4	48	42	6	30.257	59.77	.00
5	44	33	11	30.418	56.00	.00
6	45	36	9	30.427	42 77	.00
7	45	36	9	30.409	38.33	.00
8	47	38	9	30 201	71 33	.45
9	55	40	15	30.033	74.33	.15
10	61	42	19	30 047	67.00	.00
11	59	38	21	30.034	72.33	.00
12	65	47	18	29.821	89 00	1.28
13	57	47	10	30.035	59.33	.00
14	52	42	10	30.179	64.33	.00
15	53	41	12	30.204	62.33	.00
16	56	41	15	30.197	65.00	.00
17	56	42	14	30.173	60.33	.00
18	62	39	23	30.081	74.33	.00
19	62	54	8	29.914	88.33	1.80
20	62	48	14	29.973	72 33	.00
21	61	46	15	30.081	66.77	.00
22	58	46	12	30.256	60.77	.00
23	61	46	15	30.270	57.33	.00
24	64	42	22	30.231	68.33	.00
25	68	45	23	30.154	71.33	.00
26	71	50	21	30.040	68.00	.00
27	73	53	20	29.990	59.33	.11
28	59	49	10	30.079	58.00	.00
29	63	44	19	29 758	74 00	.75
30	61	50	11	29.639	65.33	.25
31	55	46	9	29.847	62.33	.01
						Total.
Mean..	58.00	44.3	14.25	29.772	65.25	4.80

Mortality in New Orleans from January 28th, 1878, to February 24th, 1878, inclusive.

Week Ending	Yellow Fever.	Malarial Fevers.	Consumption.	Small-Pox.	Pneumonia.	Total Mortality.
Feb. 3.....	0	2	14	6	14	118
Feb. 10.....	0	2	16	7	9	105
Feb. 17.....	0	1	10	3	10	92
Feb. 24.....	0	2	15	4	8	89
Totals.....	0	7	55	20	41	404

Board of Health, State of Louisiana.

SAMUEL CHOPPIN, M.D., *President.*
B. F. TAYLOR, M.D., *Secretary.*

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F. Loeber, M.D.,
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THE

NEW ORLEANS

MEDICAL AND SURGICAL JOURNAL.

APRIL, 1878.

ORIGINAL COMMUNICATIONS.

THE AMERICAN MOUNTAIN SANITARIUM FOR CONSUMPTION, AT ASHEVILLE, N. C.

BY STANFORD E. CHAILLÉ, A.M., M.D.,

Professor of Physiology and Pathological Anatomy, Medical Department, University of Louisiana.

Although familiar with the caprices of fashion in medical as in other matters, and with the fact that this baneful influence has been often and sadly illustrated in the history of the diverse resorts commended for consumptives, I, none the less, have for years advocated mountain resorts as justifying the best hope for arresting incipient consumption, and did present reasons for the faith that was in me in the May No., 1876, of the *N. O. Med. and Surg. Journal*, in an article entitled "The Climatotherapy of, and the American Mountain Sanitarium for Consumption." Continued interest in this subject has stimulated me to gather additional knowledge, not only from the testimony of others, but also by personal observation; and I propose to now present some of the evidence which has, during the past two years, attracted my attention, and served to strengthen my conviction of the beneficial influence in consumption of mountain resorts, and especially of the Mountain Sanitarium at Asheville, in western North Carolina.

Whilst the literature of the subject has, since my last article was prepared, greatly increased, and while some of the authors are not advocates for mountain resorts,—yet, I have seen no

testimony impugning the two capital facts: first, that nearly all of the localities which enjoy an immunity from consumption are in the mountains; and second, that mountain resorts thus located do yield strikingly favorable results in arresting the disease, prior to the destruction of the lungs by softening and excavations. True, some of these writers do deny that the unquestioned good results are due to altitude, contending that these are attributable to causes other than elevation, to causes which some localities at the level of the sea possess in common with certain mountain resorts. It must be admitted that these objections have a reasonable foundation, and should not be ignored so long as the profession has reason to credit those witnesses who testify that such lowlands as Florida prove eminently beneficial to some consumptives, and that such places as the Kirghis Steppes of Asia enjoy complete immunity from consumption, although actually below, as is alleged, the level of the sea.

In my previous article I referred to the Kirghis Steppes, in connection with Iceland and the Faröe Islands of Denmark* (320 miles S. E. of Iceland), to illustrate that there were places not mountainous alleged to enjoy complete immunity from consumption. I regret that I cannot at present gain access to any reports published in regard to these distant and unknown Kirghis Steppes, nor to any information further than detached allusions to the effect, that they are below the level of the sea, and that the climate is characterized by its *dryness* and its *sudden changes*, the transitions from heat to cold being not only very frequent, but also very abrupt. My regret is due to the fact, that subsequent research has informed me that "Iceland is (see Leconte's Elements of Geology) an elevated plateau about 2000 ft. high, with a narrow marginal habitable region sloping gently to the sea;" and that the Faröe Islands are also mountainous, rising abruptly from the sea, attaining a maximum altitude of about 2200 ft., and inhabited chiefly by shepherds, therefore by residents on the heights. Thus, of the localities previously cited in proof that other than mountain localities were alleged to be exempt from phthisis, it now appears that two of the three are mountainous, and therefore probably illustrate rather than furnish exceptions to the general rule, that in our search for

* Ziemssen's Cyclop. adds to this list the "Island of Marstrand, and the interior of Egypt." Marstrand is between Sweden and Denmark, and believed to be mountainous.

localities free from consumption, and therefore proper resorts for those threatened with this disease, we must go to the mountains.

However, it is not my purpose in this article to discuss whether altitude is, or is not the all important factor indispensable to every resort for consumptives; but rather to present evidence confirmatory of the essential fact that many mountainous regions are exempt from, and do prove highly serviceable to those attacked by, consumption. It must suffice the reader to be here reminded that the benefits secured in mountain localities have been ascribed—to the greater rarity of the air, causing quicker and profounder respiration, a more active central as well as capillary circulation, and increased excretion with improved appetite and nutrition;—to the greater purity of the air marked by its greater transparency, freedom from dust, and richness in ozone which purifies it chemically;—to the greater dryness and increased electricity of the air;—to the larger number of sunshiny days, and the intenser heat of the direct rays of the sun, which, conjoined with the charming diversity of mountain scenery, prompt the invalid to frequent excursions, habitual exercise, and life in the open air. Those desiring farther details on these points are referred to my previous article, and to Dr. Denison's contribution to the "Trans. of the Internat. Medical Congress, Philadelphia, 1876," entitled "The Influence of High Altitudes on the Progress of Phthisis," in which the whole subject is treated more fully and ably than in any other publication in our language.

The confirmatory evidence which I have selected to prove the favorable influence of some mountain regions upon consumption will now be presented.

Dr. Schreiber, Lecturer on Climatology in the Vienna Faculty, teaches* that observation has proved "that consumption in all latitudes diminishes with altitude, until it finally disappears altogether," and that "renewed researches have confirmed the good results accruing to consumptives from a residence in the mountains." He, however, deems it fully proved that the good results are not due to altitude, and forcibly urges as one proof thereof, that the altitude of immunity from consumption *lessens* from the equator to the poles, as is generally admitted, while the diminished pressure of the air (i. e., the chief peculiarity of

* See February No., 1878, Richmond and Louisville Medical Journal.

altitude) is *the same* for equal elevations, whether at the equator or at the poles.

Ziemssen's Cyclopœdia, one of the most recent and highest medical authorities, states: "It may be regarded as a fact that an *elevated position* protects against phthisis. A height of *at least* 1800 or 2000 ft. seems to be requisite for this purpose. Phthisis is rare on the Hartz, Styrian (in Pinzgau), and Swiss mountains, also upon the Corderillas, and the plateaus of Abyssinia, Persia, Mexico, Costa Rica, and Peru."

A careful investigation undertaken by the Swiss Society of Natural Scientists, and continued during five years, has resulted in a report to the effect that in Switzerland decrease of phthisis does beyond doubt follow increase of elevation; and that although it may occur in the most elevated places, it is very rare.

The Sanitarium for Consumption at Gœrbersdorf, Prussia (1715 ft. high)—the first of its kind—was opened in 1854 with only twelve patients during the first year, but such was its success, and such is its reputation, that, since 1873, the annual number of patients has been nearly six hundred. The sanitarium at Davos, Switzerland (5200 ft. high), had during its first year (1865) only eight patients, and in ten years increased this number to four hundred. Commending this very emphatic testimony to consideration, let us pass from Europe to North America, reminding the reader that the evidence in favor of the Peruvian Andes, as well as of the Corderillas of South America, is abundant and most decisive, and was, as I believe, the first to attract attention to our subject.

All observers report that consumption is very rare on the great Mexican table-land, termed the Anahuac. Jourdanet, a distinguished French physician, and the author of the most elaborate work yet published on the influence of mountain altitude, testifies that during nearly five years' experience on the Anahuac, with 30,000 visits to patients, he observed only six cases of consumption, that this disease is very rare in Mexico above 6500 ft., and that consumptives from other countries were often completely cured.

Dr. Denison, who presents (loc. cit.) abundant and convincing evidence in favor of Colorado, cites in addition the testimony of many others in proof that there is an approximative immunity from consumption in all that elevated section of the United States in which are located the Rocky and the Sierra Nevada Mountains.

Dr. Lewis Rogers, of Louisville, reports, and, since he is not an advocate of mountain resorts especially, reports most suggestively, as follows: "Southern California, as we know, has acquired very great repute in the last few years, and has been spoken of as destined to become the great sanitarium for consumption, and many other forms of pulmonary disease. It is to this portion of the State that thousands of people are now going for the restoration of their health, either as temporary sojourners, or as permanent residents. All of the towns mentioned [viz., San Diego, Santa Barbara, San Bernadino, Los Angeles, and San Josê] are thronged with people of this kind, particularly in the winter season. To my surprise, *I did not find a single resident physician** at all enthusiastic in his praises of Southern California. They all expressed the rational view of the subject which I have expressed. I asked them if they were in the habit of sending their patients to Southern California, and they replied that they did so occasionally and for a brief period of the winter, but that *they preferred for most of their cases the high and cool resorts of the Sierra Nevada Mountains.*"*

The highlands of Minnesota, having an elevation of from 1200 to 2000 ft., have long enjoyed a fair reputation, which Dr. F. Staples, in Vol. 27 of the Trans. Am. Med. Ass'n, asserts, sustaining his position by strong statistical evidence, is not undeserved.

A section of Texas stands in the same category, and Dr. J. B. Robertson, in the Trans. Texas State Med. Ass'n, 1877, reports as follows: "That portion of west and northwest Texas lying west of the 98th meridian of longitude, and north of the 29th degree of latitude, has an elevation above the sea (beginning at San Antonio, near the southern line indicated) of five hundred feet, and gradually rising, as the line is traced north, to fifteen hundred feet." "The beneficial effects of the climate in the area treated of is not simply a matter of opinion on the part of the writer on purely theoretical grounds. During a practice of over thirty years in central Texas, he has seen many patients sent there with clearly marked indications of consumption, and at a time in the history of the country when such patients had to rely almost entirely upon the climate for the benefit they received. In all cases the change gave marked relief with, he believes, a prolongation of life for years with some, and a perfect cure with

* The italics are mine.

others." Dr. R. states, however, that this section is not yet properly provided with the improvements and facilities needful for the accommodation and treatment of consumptives. In addition, Dr. Denison alludes to the advantages to consumptives of Fredericksburg, Boerne, Waldo, and Ft. Clarke (elevation from 1500 to 2000 ft.), in the valley of the Rio Grande, Texas.

Passing now to mountain regions adjacent to those of western North Carolina, Dr. E. M. Wright, of Chattanooga, reports (Trans. Med. Soc'ty State of Tenn., 1876) that the natives of Walden's Ridge (a portion of the Cumberland table-lands) enjoy almost complete immunity from consumption. This ridge is from six to seven miles wide on the top, contains about 600 sq. miles, and varies in height from 2000 to 2500 ft.; the people are poor, the houses are huts, and the accommodation is bad. Farther, Dr. E. A. Hildreth, President (1877) of the Med. Soc'ty of W. Va. addressing this society, testified strongly in favor of the influence of elevation in pulmonary diseases, stating that: "My own experience is limited to Portland, Oakland [2380 feet], and Deer Park [about 2300 ft.], W. Va., to which I have sent cases of phthisis in different stages of development, all of whom were decidedly benefited. I mean the cough abated or disappeared, the night-sweats or diarrhœa ceased, the appetite improved, there was a gain in flesh and strength, and many were doubtless kept alive for years. Those afflicted with hay-asthma, or autumnal catarrh are, on visiting this region, exempt. If they should be suffering with the disease, the paroxysm will usually cease within twenty-four hours after their arrival."

The section of country to which I now invite attention is thus described in the "Statistical Atlas of the Supt. U. S. Census, 1870:" "In the high regions comprised between the Blue Ridge and the great chain of the Iron, Smoky, and Unaka Mountains, separating North Carolina from Tennessee, we have *the culminating portion* of the whole chain of the Appalachians. Here, for an extent of more than 150 miles, the *mean elevation of the valley* from which the mountains rise is more than 2000 ft., scores of summits reaching 6000 ft., while the loftiest peaks rise to a height of 6700 ft." Asheville, having an elevation of 2250 ft., is located in the central part of this region, wherein I have passed from three to five months annually during the four years 1873–5–6–7. My direct evidence as a practising physician is limited to the neighborhood of the Warm Springs, on the French Broad River,

and some 900 ft. lower than Asheville: though often consulted by the resident population, I have never seen but one case of consumption—this in a mulattress not a native of this section. My hearsay evidence is more extensive, yet I have never heard of but two other deaths by consumption in this neighborhood; these were of a young brother and sister, in whom the disease was said to be hereditary, and whose family had not been long resident in this region. I have made repeated mountain excursions in all directions, and from twenty to sixty miles distant from Asheville; everywhere I was assured of the comparative immunity from consumption of all this section, and in most places my informants denied that *the native residents* ever died of the disease.

Because of the long and well-established reputation of this region, and of the superior requisites for the accommodation of invalids at Asheville, Dr. Gleitsmann, a resident of Baltimore, in search of a suitable location for the treatment of consumption in the mountains of the eastern U. States, was induced to establish here, June 1st, 1875, his Mountain Sanitarium. The foundation, at his own private expense, of the first Mountain Sanitarium in the U. States, in imitation of the numerous similar institutions which have sprung up in Europe since 1854, and are now in successful operation, suffices to at least prove that Dr. Gleitsmann—who is a highly educated and competent physician, fully posted in the theory and practice of consumption, and thoroughly convinced of the superior advantages of mountain resorts in its treatment,—possesses that admirable trait of character which the French term "the courage of his convictions." The results of this initiatory venture during the two years, June, 1875, to June, 1877, are set forth in his "Biennial Report" recently published; and, inasmuch as I had good opportunity, having passed two weeks in this Sanitarium in the fall of 1875, and again two weeks in the fall of 1877, to estimate the probable credibility of this Report, I deem it a duty, because of my credence therein, to call attention to some of the facts presented.

During the first year fifty-one guests were received, and their stay aggregated 3548 days; these numbers were increased during the second year to eighty-two guests and 5717 days; facts, which prove that this institution is growing not only in favor, but also more rapidly than occurred in the European mountain sanitaria. Of the total 133 guests 54 were patients, and only 43 were con-

sumptives. While there is no disposition on the part of Dr. G. to over-estimate the importance of results observed in so small a number as 43 cases, it will still be admitted that if these cases have been carefully studied and conscientiously recorded, as I believe they were, they ought to furnish valuable instruction. The average time passed by these 43 consumptives in the Sanitarium was only about ninety days each, and the results were that 3 died, 9 grew worse, 8 did not improve, 7 were perceptibly improved, and 16 so decidedly as in some of them to justify the belief that they were cured. Thus out of 43 patients presenting all of the various types and stages of consumption, the disease was apparently or certainly arrested in 23! This result, sufficiently surprising without further explanation, becomes even more remarkable, when the cases are analyzed as to the stage of disease. For, out of the total 43 consumptives there were only 26 whom I, or other advocates of mountain resorts, would have certainly advised to go to the Sanitarium, and of these, 20 were improved or cured. Even this result is not, so far as my own position is concerned, a sufficiently favorable statement of the facts, for I have as yet, never gone farther than urge mountain resorts for incipient consumption. Now, it appears that 14 of the above 26 consumptives, while enjoying a fair condition of general health with constitutions comparatively unimpaired, did have extensive infiltrations or even slight destructions of lung tissue, while only 12 of the 26 were unquestionable cases of incipent phthisis. These last twelve cases, having only "catarrh of the apex and infiltrations of the smallest extent," resulted in one case "improved" and eleven cases "very decidedly improved or cured;" that is, in *every case* of incipient phthisis the progress of the disease was apparently arrested, and would probably so remain under a continuance of the conditions which led to the arrest.

The strongest objection which the experienced practitioner is likely to make to the results above reported are, that "they are too good to be true;" therefore I propose to now present the evidence of other witnesses than Dr. Gleitsmann—witnesses whose disinterestedness, so far as he and his sanitarium are concerned, cannot be justly called in question: first, some indirect evidence from one source, and then direct evidence from four sources corroborative of Dr. G.'s reported results.

The indirect evidence consists of testimony to like results

obtained in a distant mountain region of this country. Dr. Denison records, in the article published since Dr. G.'s report and already referred to, his experience with 66 consumptives in Colorado. Of the total 66 cases in all stages of the disease, 40 were "slightly improved," or "much improved or cured;" but, of the 66 cases only 25 were in the first stage, and of these 17 were "much improved or cured," 7 "were slightly improved," and 1 died, owing (as Dr. D. believes) to bad treatment in the hands of an incompetent practitioner. These favorable results coincide with those of Dr. G.—and this concurrence, giving strength to each, tends to inspire credence in both reports. Since the two reporters classify differently their cases, of which each had a comparatively small number, it would not prove instructive or satisfactory to institute any strict comparison between the results reported by each; however, in this connection, the following facts are of interest. On the one hand, Dr. Denison's cases had the advantage of a much more elevated mountain region, and also of a much longer residence in this region; for his cases averaged about one year each in Colorado, while Dr. Gleitsmann's cases averaged a little less than 90 days in his sanitarium. On the other hand, Dr. Gleitsmann's cases had the decided advantage of residence in a sanitarium specially devised and conducted for the benefit of consumptives. His patients have constant access to, and are kept day and night under the surveillance of a skillful physician, who has not only his own reputation but also his financial investment in a sanitarium dependent on his watchfulness, as well as on his skill. Thus, I concur with those who advocate that it is of extreme importance in this as in other obstinate chronic diseases, that most patients should live under the constant supervision of a competent physician. All physicians admit the very great importance in the treatment of consumption of proper exercise, clothing, ventilation, and diet; and all know how incredibly ignorant the non-professional generally are in regard to these essentials, as in all else which concerns hygiene and medicine; hence the great advantage of skilled supervision, exercised constantly over all the details necessary to enforce a proper mode of life.

I will now present testimony, from three sources besides myself, which tends to corroborate the correctness of Dr. Gleitsmann's "Biennial Report." This evidence merits special consideration because of the circumstances which elicited it. In-

specting at Asheville Dr. G.'s register of patients, I found the name of each followed by the name of the physician who had advised the patient's removal to the Sanitarium; and I made a private memorandum of those physicians who had sent the largest number of patients, and who were also best known to the profession. Only three names were thus noted, and the testimony of all three is presented. Thus, the evidence has not been culled over in order to adapt it to some pet theory or to an interested purpose. Science demands, and to the best of my ability I habitually present, as is now done, "the whole truth."

Prof. A. L. Loomis, of N. York city, whose local reputation as a practitioner in diseases of the chest is unsurpassed, and whose fame as a writer on this subject is well known throughout the U. States, sent to Dr. G.'s Sanitarium three patients during the first, and nine during the second year; facts sufficiently indicative of his favorable opinion. He writes that he did not keep a record of his cases with sufficient care to enable him to commit himself farther than by the statement that "the majority have improved."

Dr. J. B. Gaston, an able and well known physician of Montgomery, Ala., sent to the Sanitarium five patients during the summer of 1877. He testifies as follows: "All were suffering with pulmonary disease, which was in its incipiency, and *all* on their return home in the fall were, and still are, *in better condition* than when they left. One was very much improved, and in three others the improvement was decided. All, I am satisfied, would have improved still more had they remained longer at Asheville, and had thus avoided the check to improvement, which was sensibly felt by one at least, as the result of the debilitating influence of the weather here in the early part of October. The condition of all of these patients would, in my opinion based on experience in similar cases, have grown worse had they remained at home during the time they were at the Sanitarium."

Dr. E. P. Gaines, one of the oldest, ablest, and most experienced of the physicians at Mobile, Ala., has sent to the Sanitarium four patients, and has written to me so instructively that I quote him at length, as follows:

"My attention was first called to Asheville, as a resort for consumptives, in an article written by yourself in the May No., 1876, of the *N. O. Med. and Surg. Jour.* I immediately began to advise patients to go there. The first one to go was a young lady who

had been under my care for a long time, and who was steadily drifting into consumption. I gave your article to her parents to read. They sent her on; she remained six months in Dr. G.'s Sanitarium, and the benefit she obtained there has lasted up to the present time. She has some bronchitis now, but her appetite, digestion, and general health are good, and she is fat and rosy; all the physical signs have improved.

"The second case was a young man whose father died of consumption. His health had been failing for a year; he had had fever occasionally, had night-sweats, and had steadily grown thinner and weaker. Finally he began to cough, and an examination clearly proved by the physical signs, that what I had predicted twelve months before had come to pass—a deposit of tubercles in the apex of the lungs. I had but little hope that anything would do him any good, but recommended him to go to Asheville and put himself under the care of Dr. G. He did so, and spent several months there in the summer of 1876. On his return he came to see me, and all of his symptoms, constitutional, rational, and physical, had so improved that I could hardly realize that I had before me the same man. Knowing what a dreadful thing inheritance of this disease is, and having a poor opinion of the atmosphere of our southern seaport towns, I urged him to close up his business in Mobile, and go back to live in N. Carolina, for I believed that he *could live there.* He thought more of his business than of his health, went back to the close confinement of his store, and by the end of the winter had lost nearly all he had gained. This past summer he travelled again, but, though in a mountainous country, he tells me that he did not receive the same benefit he had secured at Asheville.

"The third case was a young gentleman who sent for me to see him for a hemorrhage from the lungs; he was anxious to get back to his home in Montgomery, and left that night. On his arrival, he wrote asking me what he should do to ward off consumption. I recommended him to go to the Sanitarium, where he has passed two summers. He is now well; a fine, hearty-looking young man. I expect he will spend all of his summer holidays there, he likes the place so much.

"All the four patients sent by me did well except one, who returned home worse. This fourth patient was a young man who, about June 1st, 1877, came into my office to consult me in regard to a slight hemorrhage from the lungs. He had been attending

his work, and been feeling quite well up to the time of his hemorrhage. However, he had had a cough, and had been taking cod-liver oil by the advice of a physician. There were no physical signs of any moment, but I knew that he had recently lost a sister from consumption, and formed a very grave opinion of his case. I prescribed, and told him to quit work, go home, and maintain a recumbent posture, etc. In a few days I was summoned to visit him. A fever had set in which lasted nearly four weeks, and which had all the well-marked symptoms of an acute bronchitis. He also had several hemorrhages during this time. When he recovered from his fever, he was much emaciated and very weak. His fever had gone, but the bronchial symptoms remained, and they were most perceptible in the upper portion of the lungs. My diagnosis throughout was that miliary tubercles were scattered through the lungs, and were the cause of all that had occurred; and yet the mountain air had had an effect so wonderful in the cases mentioned, that I felt justified in sending him to the Sanitarium. He improved so much after he got there, that on one occasion he so over-exerted himself in walking, that it brought on a hemorrhage, succeeded by many others, so that Dr. G., fearing they might prove fatal, sent for his parents. He is now (Nov. 15th, 1877) at home, confined to his bed, and I have been told that he had a hemorrhage to-day. You will thus see that this is a case of acute tuberculosis; and it is nothing against either Dr. G.'s Sanitarium, or the climate of Asheville, to find that they cannot do impossibilities.

"Thus, my experience so far is small, since I have sent but four patients who remained there during the summer months only. However, the improvement in three of the cases was so well marked, that I shall continue to advise my consumptive patients to go there. All of my patients went to the Sanitarium, and their improvement was due to Dr. Gleitsmann's skill as well as to the purity of the air at Asheville. I believe that you are right in recommending the place as a resort for consumptives, and that your opinion is worth more than that of the rest of us, since you have been there on two separate occasions, and know how well the Sanitarium is managed."

I will close the corroborative testimony by reporting the case of one of my own patients sent recently to the Sanitarium, first reminding the reader that in addition to this case, I had ample opportunity during my two visits to see a number of consump-

tive inmates, and to become satisfied by my own observation, as well as through the testimony of Dr. G. and of the patients themselves, that the beneficial results claimed have not been exaggerated. While at the Warm Springs, N. C., 37 miles west of Asheville, I, on July 2d, 1877, addressed Dr. G. the following letter: "This will be presented by Captain ****, who by my advice goes to Asheville to place his wife under your charge. The apex and upper fourth of her right lung are seriously affected; prolonged expiration verging into tubular breathing, associated with crepitation and undue resonance, are well marked. However serious these signs, there are several hopeful symptoms which you will readily appreciate. Should she improve, as I believe she may at your Sanitarium, she will probably make a long stay. It is needless to urge you to do your utmost in her behalf." I deemed this case hopeful *provided* she went to the Sanitarium, and because of my confidence therein; without this and guided by past experience, my prognosis would have confidently been death within six months. In less than three months I met this patient in the Sanitarium in a condition so vastly improved, that I could with difficulty realize a change so different from my past experience, and so superior to the hope I had ventured to entertain. Admitted on July 3d, she had promised me to remain a year if needful, but she had improved so incredibly, and was so anxious to return to her husband that on October 1st she—whose condition at the Warm Springs had been such as to cause much anxiety about her transportation to Asheville—left the Sanitarium to travel alone to her home in a distant Northern State. I deemed this early return imprudent, and fear that the apparent certainty of perfect recovery at the Sanitarium will not be realized at her home. Having now presented some testimony from others besides Dr. Gleitsmann as to twenty-two cases sent to his Sanitarium, I close the evidence upon the credibility of the results reported as secured there.

My recent second visit to the Sanitarium justifies me in emphatically repeating the praise in my former article of its admirable management. Its excellent table, loaded with choicely cooked and appetizing dishes, its ventilation, cleanliness, good order, comfort, and moderate charges of from $40 to $50 per month, cannot be too highly lauded, even by one who like myself has patronized the most famous hotels and restaurants in Europe, as well as in America. I have known many invalids to visit

Asheville, and there remain in far less comfortable but just as expensive quarters, because prejudiced against all institutions for the accommodation of the sick; imagining that, at the table and incessantly everywhere within the Sanitarium, their spirits would be depressed, and their sensibilities offended by the sights, sounds, and smells which are naturally associated with the sick. Testimony founded on the delicacy of the sensibilities of one who, like myself, has been hardened by years passed within hospital walls, might be accepted with incredulous scepticism. Therefore, without dwelling on my own conviction that the realities are very different from the anticipations of the inexperienced, and that no such offenses are found in the Sanitarium, I will state that on each of my two visits I have been accompanied by three ladies, not only refined, but also as inexperienced and prejudiced as any women of intelligence are likely to be. I carefully watched the effect on them, and testify that they were most agreeably surprised, assuring me that they found but one thing objectionable--the proclivity of the invalids to dwell upon their individual ailments. This made slight impression on me, as I encounter great difficulty in finding *healthy people outside of sanitaria* who will not persist in wearying me with petty personalities: those of my readers more fortunate might complain of the sick within sanitaria.

The facts, already stated, should be recalled, that of the total 133 guests during two years, more than half were perfectly healthy; of the 54 invalids, few were sufficiently ill either to be confined to their beds or to be unpleasantly suggestive of sickness and death, and these few were not to be seen unless sought for. I have never visited a summer resort for the healthy, where the company at table or in the parlor was more cheerful and agreeable. On each visit, I have found a larger number of persons of refinement, culture, and intelligence, than one meets habitually at hotels; for the reason, perhaps, that the class apt to be socially offensive has not the means, or, if so, not the intelligence to seek a sanitarium. As I am anxious to prove a trustworthy guide to those who may be induced to visit the Sanitarium, I must report the chief objection made against it by its consumptive inmates. This was the *ennui* of living in a place where they were cut off from family, friends, and their ordinary occupations. Some patients had, as of course it is better that every consumptive should have, their dearest relative with them;

and these patients were as content as the sick are likely to be in any place. Invalids should not forget that even the healthy find the search for happiness delusive, for contentment arduous, and should prepare themselves, as best they may, for resignation to the conditions necessary for their restoration to health. Submission as cheerful, occupation as entertaining, as possible are important conditions.

Time, also, is a most important condition in the treatment of every disease, in none more important than in phthisis; and its victims should not be encouraged to expect its arrest, much less restoration to health, within some definitely fixed period. Three months is the shortest time within which decided improvement should be hoped for; if double or quadruple this time yields lasting good results the patient should still deem himself fortunate; and if it should prove necessary that some, in order to preserve health, should pass, as is correctly intimated by Dr. Gaines, all the rest of their lives in the mountains—then, even this misfortune is far less grievous than the habitual progress and termination of this fatal disease. Invalids sent to the mountains cannot be too urgently warned against too short a stay, against undue confidence in a brief alleviation, and against the natural impatience to return home; faults, which have often caused a rapid loss of all that has been gained. This loss for a second time is more difficult to regain than was the first.

The reader is also reminded that experience seems to have proved, contrary to what was expected naturally and therefore was taught, that hemorrhagic cases in the first stage are, as a rule, decidedly benefited in the mountains, and that the winter season is as favorable to all cases as is the summer. Dr. Schreiber (loc. cit.) represents many high authorities in stating that, "during the past ten years hundreds of invalids have wintered in the elevated valleys of the mountains with just as favorable results as in the so-called southern resorts;" and that "the practice of sending invalids to winter in the mountain regions has proved a success." At Davos, in the mountains of Switzerland, the patients are urged to remain until the snow begins to melt.

In concluding this article, I will, in order to avoid being misunderstood, allude to two topics. First, I desire it understood, that while I incline to believe that the climatic conditions which are the results of altitude are important factors in the hygienic treatment of consumption, I have not ventured to recommend

any and all mountains, but only such mountain resorts as experience seems to have proved beneficial, and as supply proper accommodation for invalids. Second, I desire it understood, that in advising mountain resorts for consumptives I have had in mind solely those in the first stage of the disease; or those who, although long afflicted, have advanced but slowly on the downward road, and still maintain sufficient vigor to spend a large portion of time in the open air. I have not taken the grave responsibility of advising where those in the advanced stages of the disease should go; for, I fear that the best advice which can be given to consumptives already confined to their beds, with lungs disorganized by softening and cavities, is—to remain in, or to forthwith go to the place where they can live with most comfort, and face death with greatest resignation. However, others, with greater experience as to some resorts' seem to be more hopeful. For instance, on pp. 422–3, "Trans. Internat. Med. Congress," Dr. H. A. Johnson, of Chicago, states: "I believe that in the earlier stages of the disease, patients are benefited by going to the mountains, but, on the contrary, when softening has set in, when cavities exist, I believe that it is hazardous for them to do so. A warm, mild climate is better then. I had about fifty patients last winter in Florida, and they came back better; even those in whose lungs cavities existed were better than they would have been had they stayed in Illinois." He therefore "will continue to advise patients in the *first stages* of phthisis *to go to the mountains*, and in the latter stages to go to Florida or Georgia."

Finally, a few words of instruction to the traveller. One railroad from the West, and two from the East, are advancing towards but have not yet reached Asheville. Proceeding by rail to Morristown, Tenn., which is between Knoxville and Bristol, and furnishes miserable accommodation, the traveller will find a branch road to Wolf Creek, 40 miles distant. From thence to Asheville is 46 miles by stage, through the superb scenery of the French Broad River, but over a mountain road so difficult that 3½ miles an hour is deemed good staging. The Warm Springs Hotel, 9 miles from Wolf Creek, is an excellent place to rest.

On the east of Asheville is the "Piedmont Air-Line Railway," with two depots—Spartansburg, S. C., and Charlotte, N. C.—from whence are branch railroads in progress to Asheville. The Spartansburg road will reach, it is said, this spring within 30

miles of Asheville; and the terminus of the Charlotte road, now about 20 miles from, will probably be this year (possibly in July) within 7 miles of Asheville. The Spartansburg route will probably be the best one for travellers from the South; while those from the North should take the railroad leading from Charlotte, N. C.

LISTER'S ANTISEPTIC TREATMENT OF WOUNDS, IN WARDS 3 AND 4½ OF THE CHARITY HOSPITAL OF NEW ORLEANS, DURING 1875, 1876, AND 1877.

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Continued from March No.

Ligation of *arteries* in continuity: 5 cases, with one death caused by secondary hæmorrhage from cancerous destruction in a case of ligation of the external iliac; besides this artery the carotid was tied 2 times, and the femoral also twice.

External urethrotomy: 3 cases.

Operations of *scooping* out *buboes*: 7.

" for removal of cancer: 2 cases, one dying from recurrence of the disease.

Operation for hydrocele: 2 cases.

" " rhinoplasty: 1 case.

" " chiloplasty: 1 case.

" " hare-lip: - 2 cases.

Compound fracture of *thigh* conservatively treated: 2 cases.

I have treated at the hospital besides 46 cases of *ulcer* of the *leg*. Amongst that number were some comprising about the 3d of the surface of the leg, partially with necrosis of the bone, cases which made it at first doubtful, whether amputation was not indicated. All were cured, and many of them in a relatively short time, in consequence of a new method of treatment adopted.

The treatment of all wounds under the antiseptic method, with the exclusion even of the 46 cases of ulcer of the leg, reports a mortality of not quite 4 per cent., which might be reduced to 2 per cent., if we remove from the 5 deaths those who died unconnected with the operation performed; yet a mortality of 4 per

cent. is certainly a most gratifying result, the more so, when we consider that the cases were not selected, picked out of the diseased material, a stultifying action which we deeply despise, from whatever coterie of surgeons it may emanate.

With regard to the treatment of buboes (inguinal glandular inflammations), I cannot recommend too highly a method which I have introduced here, i. e., the scooping out of the diseased suppurating glands with the sharp spoon (an instrument like the excavated half of a ball with sharpened edges, and fastened to a long stem and handle, recommended by the late Simon of Heidelberg, for the scraping out of tumors from the cavity of the uterus).

It not only shortens the time of healing considerably, but also affords a better cicatrization than under any other treatment. After the diseased, necrotic skin has been extensively removed with scissors, bend over the surface of its plates, and the inflammatory, suppurating glands thoroughly excavated, and when the main bleeding has ceased, the antiseptic dressing, under the constant action of the spray, is applied.

Under the renewed application of Lister's dressing, the holes will soon fill out with organized blood, granulations, and the cicatrix which will form is so smooth, that in some cases it can hardly be recognized. Whoever will have once followed this method, I am certain will never employ any other. I have often removed the skin extensively in such cases where it was yet comparatively healthy, but the glands underneath involved to a great extent.

In regard to that surgical opprobrium, the sore leg, or ulcer of the leg, I believe to have simplified its treatment considerably, whereby not only a great deal of labor but also expense are saved, which in a hospital with such an immense percentage of this disease, as in our Charity Hospital, has to be considered as an important object. The treatment which I have adopted consists in the use of an air-tight gypsum bandage, After the foul, corroded, offensive sores have been cleaned and have become inodorous, which is accomplished by poultices with flaxseed powder during the first few days, to be followed by the application of compresses saturated with 5 per cent. carbolic water, the leg is well cleaned with soap and the razor applied, if needed, to remove the hairs in the neighborhood of the sores. The ulcers are again well irrigated with 5 per cent. carbolic water, and

covered with a paste 3‴–4‴ thick, made of gypsum and carbolic water, a few layers of gauze bandage being yet applied to retain the same. The dressing has to overlap the sores several inches. As soon as the dressing has become hard, which generally takes about 5 minutes, the leg is supported by a sling fastened to the bed-posts, so that the extremity forms the highest part of the body. A rapid formation of healthy granulating tissue follows under a great deal of suppuration, which will afford a changing of the dressing every 3d day. The defects will fill out with granulations in a time seldom observed under any other treatment. Many yards of adhesive plaster and bandages are hereby saved.

Yet the difficult part first begins with the cicatrization, after the granulations have grown to be of equal height with the skin surrounding the wound. Here I have often met a Philippi, and am forced to acknowledge, that in order to accomplish cicatrization, we have to experiment and try different remedies and proceedings, from the touching the surface with nitrate of silver to force an artificial scab, to transplantation, or grafting of small pieces of skin, taken from the patient himself or another healthy person.

In healing of old ulcers upon the lower extremities, and most so upon the feet, I have several times tried with success the ligation of the main artery, carrying most of the blood to the sore. Such a case I had under hand first in 1853. It was an extensive suppurating wound on the dorsum of the left foot, caused by the blow of an ax. All possible remedies had been applied, and had failed to cause the least reaction; it then struck me that in cutting off the main supply of blood might probably lessen the secretion. I ligated the art. dorsalis pedis, and to my astonishment, the wound healed up so rapidly that I could discharge the man perfectly cured in ten days after the operation, although he had been an inmate in the ward of the hospital for over two months, and yards of adhesive plaster, and dozens of different remedies had been applied unsuccessfully. I may well claim the originality of this proceeding, having never seen anything published before which had advised this method. In the same year I met with another such resisting wound on the left forearm of a laboring man, who had been cut with a butcher knife during a brawl. I ligated the brachial artery with the same success, the wound healing in a few days, after having withstood over a month

all trials of inducing the wound to heal or even to improve. In some cases I have also tried with success incisions through the skin in the neighborhood of the ulcer, which success might be explained equally by cutting off most of the supply of the blood. After having attained a healthy granulating surface of equal height with the surrounding skin, in order to induce and accelerate cicatrization, it is often also advisable to use a few strips of adhesive plaster, in order to confine the exuberant granulating tissue and at the same time to approximate the edges of the sore.

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As an introduction into the chapter containing some of the more interesting cases treated by me under the antiseptic method, I will give here a résumé of the utensils and the material to be used in Lister's antiseptic treatment of wounds.

We ought to have:

1. Two spraying apparatuses (Richardson's).

2. An irrigator.

3. Several large jars filled with carbolic water containing 3 and 5 per cent. carbolic acid.

4. *Sponges* and *antiseptic loose cotton.* The sponges, previously to being used, have to be cleansed from all impurities, sand, etc., and disinfected, if used before, by submerging them in a solution of permanganate of potash until they have become black or dark brown; being well washed and pressed, they are now laid in a solution of hyposulphite of soda.

5. *India-rubber tubes for drainage,* ought to be of different sizes, varying in thickness, from the size of a goose quill to double its circumference, with holes cut into them, sufficiently large and numerous, but not too near each other so as to interfere with the elasticity which the tubes ought to retain. The rubber tubing of commerce is black, and ought to be made antiseptic previous to being used. For that purpose, the tubes have to be submerged a week or two in water containing 5 per cent. carbolic acid, when they will obtain a light greyish color and are fit for being used.

6. *Carbolized catgut thread,* of different thickness, for the use of ligatures and sutures. These catgut threads are made in the manufactories of Lister's antiseptic material, and are kept in carbolized oil. It is advisable to add the same quantity of carbolic acid as the oil contained in the vials, before making use of the

catgut, since the oil destroys to some extent the efficacy of the carbolic acid, and it has happened, as mentioned already on a previous occasion, in the hands of Volkmann, that poisoning had taken place from a piece of catgut, which probably had been taken from a diseased animal, or had not been sufficiently disinfected.

7. *Carbolized silk thread*, for sutures or ligatures, is best prepared by the surgeon, in placing the silk thread in melted wax to which the 4th part of carbolic acid has been added. Pulling the thread through a piece of clean disinfected cotton cloth, the surplus of wax is removed from the silk. So carbolized silk thread is kept in an air-tight box, and previous to being used is again washed with a 3 per cent. solution of carbolic water.

8. *Antiseptic gauze* for covering and bandages. The *protective, mackintosh* or *gutta percha plates* are, like the catgut, best taken from the manufactory, as established in Schaffhausen, Switzerland, or Studtgard in Germany. They are as cheap, and certainly better than if you would prepare them yourself. As substitutes for some of the carbolized material, *salicylized cotton* and *salicylized jute* have been introduced in the antiseptic method. It was foremost Thiersch, in Leipzig, who by substituting the salicylic acid for the carbolic acid induced his colleague Kolbe, Professor of Chemistry at Leipzig, to experiment for a cheaper method of preparing artificially the costly salicylic acid, and the latter chemist succeeded so completely, that at present the costs of the salicylic dressing materials are not much higher than those of the carbolic acid; but what seemed at first a great acquisition has been disproved by experience. Many surgeons, and Thiersch amongst them, did not meet with the favorable results which they had obtained under the carbolic acid, so that at present the salicylic material ranks only second in antiseptic dressings.

Besides the salicylic acid, there has of late entered the surgical arena another antisepticum, which has been recommended by no less an authority than one of the able assistants of Volkmann in Halle, and which seems, from what we hear, to become a mighty competitor of the carbolic acid; I have reference to the *thymol.**

* This thymol or thymiancamphor is, like the carbolic acid, a phenol, and different in its elementary composition from the carbolic acid in having two atoms of hydrogen displaced by methyl and propyl. The thymol is contained to half its quantity in the volatile oil of different plants—the thymus vulgaris, ptychotis

H. Ranke has first introduced the thymol practically as a standard remedy, supplanting the carbolic acid. He has given directions in preparing the dressing material. For the manufacture of the thymol gauze he gives the following: 1000 parts bleached gauze, 500 parts cetacum, 50 parts pitch burgund., 16 parts thymol. Ranke, in a pamphlet published lately (Samlung Klinischer Vortræge, edited by R. Volkmann), says that such a thymol gauze did not cause the erythema and eczema we occasionally observe from the irritating effects of the carbolic acid. The paraffin contained in the carbolic gauze, being also an irritating substance, he supplants by the cetaceum. Ranke further states that this thymol gauze is soft and supple, and attaches itself close to the skin, absorbs blood, and the wound secretas like a sponge, and that even after a thorough imbibition with such liquids, it remains elastic in a high degree, which is not the case with the other antiseptic dressing materials, as the salicylic and benzoic wadding. (The secretas, as a matter of course, only fill out the meshes of the gauze, the cotton fibre being impermeable against liquids by the impregnation with pitch and fat.) The so prepared gauze ought to be kept in a nearly hermetic enclosure, or in pergament paper, and not exposed to the atmospheric air, in order to prevent the evaporation of the volatile antiseptic (which is also to be observed with the carbolized gauze).

Ranke has also used for spray, and disinfecting the instruments, a solution in 1000 parts of water of one part thymol, first dissolved in 10 parts alcohol and 20 parts glycerine. He has quite extensively experimented, and under the control of Volkmann, with the thymol in all kinds of wounds and operations to his full satisfaction, with results which recall to mind the assertion of Husemann, that the thymol was by far surpassing the carbolic acid in its antiseptic qualities. Taking in consideration

ajowon (East India), monarda punctata (an inhabitant of our country). The thymol is won after Lallemand, in mixing the volatile oil of commerce with a concentrated solution of caustic potash or soda. After separating the thymen and cymol, two substances so produced which are swimming on the liquid, the rest is acidulated with muriatic acid, whereby the thymol appears as an oily fluidum. It is purified by distillation. The thymol has first been discovered by a Prussian chemist, Caspar Neumann, 1719. The attention to its powerful antiseptic qualities have first been drawn by Bouilhou and Paqnet. In 1872 we find two Russian physicians, and in 1875 Lewis, Husemann and Vallerde, attracting the attention to the thymol as an antiseptic and anti-fermentative remedy.

that the thymol has no poisoning character (one gramme can be taken internally without producing any bad symptoms), and that it is only wanted in so small quantities, its present high price does not come into question to prevent its general adoption.

Ranke concludes his article with the following words: The thymol bandage leaves nothing to wish for, in regard to the security of its antiseptic effects, and is preferable to the carbolic gauze bandage on account of the quantity of secretion becoming much smaller; the time of establishing a cure is thereby shortened, and the costs, on account of the lesser number of dressings necessary, less. The thymol bandage, compared with the carbolic acid bandage, is moreover superior on account of its non-poisonous qualities; under it eczema and erythema of the skin are not observable. From its non-poisonous qualities, a solution of thymol might also be used in irrigations, a circumstance in which it also surpasses the carbolic acid, since in larger wounds irrigations with this phenol cannot be used without some risk.

In the following we may compare the anti-fermentative qualities, or to prevent the appearance of bacteriæ.

Thymol in 1 per cent. (1 in 1000).

Carbol, $\frac{1}{2}$ per cent. ($\frac{1}{2}$ in 100).

Boric acid containing $^1/_{133}$.

The Dolphin Manufacturing Company, whichhas been established of late in New York, 65 Duane street, might probably be induced to prepare, besides the carbolic material, also such made of thymol.

It remains for me to say a few words about the *thermometer*. In the text of this Essay I made some remark about the usefulness of this instrument. In no well regulated hospital do we of late miss on the beds of the patients operated upon, charts, which give us the daily morning and night temperatures of the inmates. In the after treatment of wounds, and of other grave injuries under the antiseptic method, the taking of the temperature twice daily has the object of controlling the efficiency of the antiseptic dressings. Yet the simple increase of the temperature, even of 2 or 3 degrees, without the simultaneous presence of other important symptoms, does not indicate a condition of an always serious character, and the important rôle the thermometer has of late played cannot be fully sustained, at least not in the ratio in which it has been generally considered. The beginning of a *septic infection* will always be indicated by a rise

of the temperature, but not every rise of temperature indicates a septic infection. Any one who has for a length of time made use of the antiseptic method, will frequently, on the 2d or 3d day, have observed an increase of the temperature to 39° or 40° C., or even higher, and lasting 3 or 4 days, yet at the same time without other serious symptoms, concomitant and characteristic of a septic fever. At the period of my trials with the antiseptic method, I was now and then puzzled in observing this sudden temporary rise of temperature, without seeing it followed by any other of the graver symptoms characteristic of septicæmia. I felt inclined first to attribute these observations to errors committed by the attending student in charge of the resp. patient, or to the inaccuracy of the instruments used; but I soon became convinced that the charge could not always be sustained, though the key to the elucidation of the puzzle had not been found. If in the course of time I have arrived at the proper explanation of this temporary increase of temperature without accompanying serious symptoms, or if it should be necessary to consider it under a separate name and character, as Volkmann and Mehrgans have done, I will leave for others to decide.

At the removal of a dressing, in exchanging the antiseptic bandages, the wounds are of course exposed to the air for a different length of time. When we now find, some hours later, an increase of temperature, nothing lies certainly nearer, but to explain this by the absorption of the wound of some noxious substances, motors of decomposition, or so-called "irritaments," contained in the atmospheric air, with which the wound had come in contact. Now if this is admissible, which nobody will deny any more to-day, why should not such happen also at the time of performing an operation, or at a period previous even to any operation, or at the application of any antiseptic dressings, and an absorption of such a toxic matter take place even in an indirect manner or way? Yet let us put the question, why ought not such an infection be admissible through the natural passages, the lungs or intestinal tract? And might not such absorbed septic motors, though not producing the more serious symptoms of a septic fever, be indicated merely by an increase of the temperature? Whatever the true cause and explanation might be, so much is certain, that the increase of temperature to which I have referred at the beginning of the antiseptic treatment, if not accompanied or followed by other serious symptoms, need not

be regarded as indicating any dangerous complication, and affording therefore surgical interference. What hypothesis we may adopt in regard to inflammation or fever, a chemical or mechanical one, we do not know yet for certain the causes in the rise of temperature. It accompanies a fever, an inflammation, but is it clearly caused by septic motors? I, for my part, cannot deny it. Volkmann has applied to this increase of temperature the name of *aseptic fever*, in opposition to the septic fever (septicæmia), and considers it an entirely separate form of fever. I doubt the correctness of this assumption. The *septic fever* we know coincides with the abundant origin of the bacteriæ of putrefaction. We find them in deep-seated tissues, abscesses, etc., which have no direct communication with the atmospheric air; these septic germs must therefore have entered in some other way out of the atmospheric air. Characteristic of the septic fever is the intoxication of the nerve centres, a depression of the proper functions of the intestinal tract, of the secretory glands, a dulness of the sensorium, somnolence, mental depression, hallucinations, prostration of the whole system. All these symptoms, truly, are wanting in the other form of fever called by Volkmann the *aseptic fever*, in which we have no other clinical symptom except the increase of the temperature; though it may rise above 40° C., the patient seldom presents the least symptom of sickness; he does not complain of loss of appetite, his tongue is never dry, his skin is moist, urine abundant and rich in urea and chlorides, the pulse normal, and no loss of flesh or nerve power is observed. In one word, this condition is bare of any prognostic importance. The simple increase of temperature ought, therefore, never require our professional interference; in a few days this increased temperature will have subsided again to a normal standard.

We may meet with this fever, says Volkmann, also in injuries of a subcutaneous character, in severe contusions of joints, simple fractures of bones. Such who deny these facts prove thereby, that the thermometer is not their daily companion, and such negligence will often be punished. The subsequent height and duration of this wound fever in such subcutaneous injuries is in conformity with the neglect of an early applied compressive bandaging with carbolic compresses, which will suppress the swelling and any local reaction, and the result of which will be an apyretic condition with only a temporary increase of tempera-

ture. Still we cannot explain, says Volkmann, why, in subcutaneous injuries, simple fractures of bone, the fever does not always present the septic character. In a pamphlet lately published by him and Mehrgans, we find the following sentence: "Most so have we observed in cases of fracture of the neck of the femur, serious fever of an infectious character, though afterwards the cure was obtained without any further difficulties." They put the question here, if not probably other internal organs have been diseased, or poisonous exudate be secreted in the fracture? They even do not deny, that an incorporation of bacteriæ of internal organs, communicating with the air in the intestinal tract, or the lungs, might be possible; yet they shrink from acknowledging this to be the case generally (to which they will have to come finally). For any further information I have to refer to the pamphlet.

According to the views of Volkmann and Mehrgans, the wound fever which they call *aseptic* is nothing but a *fever of resorption*, differing from the *septic fever* in that, whilst in the latter some heterologic, poisonous, putrefying substances or liquids containing certain specified irritants, are absorbed by the blood, in the *aseptic fever* a resorption takes place of substances not much differing from such met with in the physiological structural metamorphoses, or represented in the physiological regressive metamorphoses of tissues. That substances of such a character may cause a considerable increase of temperature of the blood, is proved by the observations in transfusion, or autotransfusion.

In inflammations following subcutaneous injuries, in injuries caused by blunt instruments, cellular elements, different tissues and exudations become decomposed, mortify, and become resorbed by the lymphatics, come into the circulation. Even the antiseptic treatment of fresh wounds cannot alter this, and less so when prima intentio is obtained, and the decomposed substances remain in the body. The aseptic fever is observed to be of a higher intensity where resorption takes place to a greater extent. It depends more on the quantity and quality of the injury than is the case with the septic fever. Small injuries or wounds caused by sharp instruments, without an accompanying contusion of the tissues, or without extensive extravasations of blood, run down in an apyretic manner; under the antiseptic treatment, though tendons or joints may have been implicated,

no increase of temperature is observed. Large contused injuries, or extensive lacerated wounds cause, on the other hand, most always fever, and in proportion to the extent of the injury. A great deal hereby depends upon a proper antiseptic treatment, so that under a well-directed irrigation and draining, even the largest incised wounds or injuries may heal in an apyretic manner.

These facts and observations, Volkmann and Mehrgans think, would be of importance to understand the fever. These facts, they say, will make it already impossible to consider some clinical fever symptoms as depending upon an increase of the temperature of the blood, yet we ought not to forget that the aseptic wound fevers in the majority of cases are merely of short duration. These facts further prove, that under the antiseptic treatment thermometric measurement by themselves, are not sufficient to decide if an increase of temperature will indicate a coming danger. In the same measure as the thermometer fails to be a valuable indicator, the general condition of a patient increases in importance.

"If our hypothesis is a correct one," Volkmann and Mehrgans conclude in that interesting article, "that the *septic fever* originates where phlogone and pyrogone substances act simultaneously; the *aseptic fever* where alone pyrogone, and not phlogone, acting substances are resorbed, the future only can decide."

Interesting and captivating as the views of the distinguished investigators are, their illustrations have failed to leave on me a lasting impression of the correctness of their interpretation of the observed facts; yet who is right or wrong the future will probably decide.

That I have not in this essay enumerated the exploits of a limited number of surgeons, who have adopted the antiseptic method of treating wounds (in Germany, there is hardly a surgeon to be met with who has not already adopted this method), I hope I may be forgiven. It is often difficult to separate the real from the fictitious. In selecting one worthy representative of the antiseptic method, I believe I have acted properly. The results obtained by Volkmann are not only splendid, but equally trustworthy, and his reliable statistical reports really incomparable and hardly to be surpassed. They may be referred to as a prototype, made up in the only proper manner, if such shall be made use of as a true criterium of a method, whilst the

majority of all our known statistical efforts are not worth the paper on which they have been written.

It does not seem to me amiss, on this occasion, to say also a few words of an apparatus which has entered the armamentarium chirurgicum, and in some, if not all of the capital operations has become quite indispensable, *Esmarch's constricting bandage.* It is best made of a roller bandage of india rubber of sufficient length, and an india rubber band used as a tourniquet. Amongst the surgeons who have frequently made use of this contrivance, there will be but few who have not often experienced, after the operation, at the removal of the constricting band, a considerable oozing of blood from the whole surface of the wound. Most so will this be observed in amputation wounds, and the bleeding seems to be more intensive the longer the time the constriction of the limb has lasted. Here we observe often, besides the capillary bleeding, a number of muscular arterial branches bleed, which under other circumstances (without the application of the constricting band) would not give off as much blood, and this bleeding resists often for a long time all efforts of arresting it. Yet if the blood so lost could be measured, it might even exceed the quantity the body is deprived of by the old method of using the tourniquet or digital compression of the main artery, so that the object for which Esmarch had destined his contrivance, of saving blood, would rather be converted into the contrary, a blood wasting machinery. The cause of this abundant bleeding may well be searched for in the paresis of the muscular fibre caused by the pressure on the motory nerves. In order not to be deprived of this in other respects excellent contrivance, we have to check and prevent this great loss of blood. Of all hæmostatics which have been tried, none has in my hands been as efficacious as the application of the faradic current to the bleeding surface. If we could for a moment doubt the correctness of the views just advanced, that the cause of the bleeding rested in a temporary paresis of the motory nerves, the efficacy of the electric current in checking the bleeding would remove any doubt hereof. With the negative pole placed on the sternum, or another part of the body, the positive pole, armed with a sponge saturated with a solution of borate of soda, or acetate of aluminium, is held against the bleeding surface of the wound till bleeding has ceased. A small electric battery, such as in Gaiffe's, ought not to be absent wherever Esmarch's apparatus is used.

It would indeed be a loss, if we had to relinquish so excellent a contrivance as Esmarch here has given us. The benefit derived from it in many operations, from not being interfered with by the bleeding whilst operating, cannot be estimated too highly.

CASES.

1. *Partial Dislocation and Ankylosis of the left Hip-joint, caused by Osteomyelitis. Osteotomic Operation. Excision of a wedge-shaped piece of Bone from the Femur to Correct Malposition of the Limb. Death from Pyæmia Multiplex.*

Ed. Fr. Ellis, 22 years old, a farming hand from Miss.; father died of inflammation of bowels; mother still alive. Like his parents, patient suffered frequent attacks of a malarial intoxication, "chills and fever." When 7 years old, had a violent attack of typhoid fever, during which a cataract became developed on right eye, associated with an opacity of the cornea. In August, 1871, marched 13 miles to attend a ball, danced all night, and walked home next morning the same distance. Pain set in around ankle-joint of right leg; patient became delirious, delirium lasting two days. Meanwhile a doctor had lanced the leg, but only blood came away. Swelling increased, was lanced again, this time a considerable quantity of pus being discharged. The leg was poulticed with bear grass. Two months later a piece of necrotic bone, 2″ long, 1″ wide, was removed from the anterior portion of the tibia. Two weeks previous to the extraction of bone, a swelling of the size of a silver dollar appeared on the outside of upper third of right thigh, increasing to a man's fist; it was opened, and contained about ½ pint of pus. Kept discharging two weeks under application of flaxseed poultices. After it had healed 4–5 days later, his left shoulder felt sore, became tender to the touch. A tumor of size of a hen's egg appeared. It disappeared under digital compression continued 4 days, though pain lasted over one month, yet less severe than before. Another swelling came on, comprising the dorsal face of metacarpal bones of right hand; lanced; began to discharge pus, and healed a week after it had been opened. Patient left his bed after a confinement of eight months, but much prostrated; felt occasionally pain in right ankle. He went into

employment as a general hand at a farm. During the next two years he suffered occasional attacks of chills and fever. In January, 1874, a swelling of the size of a hen's egg appeared in his left groin. A lye poultice was applied to the swelling, and it gradually subsided but to return 6 months later. When of its former size it was lanced, blood merely came away. The doctor, as the patient stated, now put a *seton* (!) through the tumor. Four days later suppuration had become established, lasting a considerably long time. About two tablespoonsful of pus came away daily. Patient was again confined to bed 2 months, but did not suffer any pain. During this time nothing was done professionally except an occasional renewal of the seton. At the end of the 2d month patient left his bed, began to walk with difficulty, feeling the hip "to be sore." A month later, whilst the wound was still discharging, patient was again attacked with a violent fever, was delirious, the fever lasting one week. Patient had been confined to bed one month, and when he tried this time to get up he could not move his left hip. The limb had become "crooked" and shortened, and in that position the extremity has remained ever since, a warning sign post of surgical incapacity and negligence. No trial had been made to arrest the inflammation of the hip-jotnt, or to correct even the position of the limb.

I cannot avoid, on this occasion, to express my astonishment over the mass of professional ignorance that I have come across in the treatment of inflamed joints, and most so the hip-joint. If it needed a special proof, I might point to the hundreds of limping people walking the streets of our city, most of whom may be set down as living monuments of surgical incapacity, the ill-fated victims of an unrivalled folly. Should we think it possible at the end of the 19th century, with our present knowledge, that in a case of an inflamed hip-joint, of a granular hyperplastic synovitis, the advice would be given, that nothing could be done but to wait till an abscess had formed and the joint had begun to suppurate? and such an advice has not come to my ears but once and has not been the worst one!

The discharge from the groin ceased by and by, and the opening closed. In the course of time several other abscesses formed and opened on different parts of the body, one of which was still discharging at the back of the pelvic rim, at the time patient was admitted at the hospital.

After patient's admission he suffered several attacks of intermittent fever, otherwise he felt strong, and was desirous of a trial being made to straighten his crooked extremity, so that he could dispense with the crutches.

It cannot be doubtful, from the history so minutely given by the patient, that besides his periosteal affections, symptoms of ostitis, if not osteomyelitis had also presented themselves.

On account of the several attacks of chills and fever which patient had suffered whilst at the hospital, 10-grain doses of quinine had been given him daily, as also the iodide of potassium in 20 grain doses.

Status Præsens.—Patient was walking on crutches. His left lower extremity was flexed at the hip and knee-joint. The thigh was flexed under an angle of 120° and adducted, the foot was rotated inwards, toes pointing downwards and nearly 9 inches from the floor, the knee overlapping the right lower extremity. The most prominent part of the trochanter reached beyond the Roser-Nelaton line, applying the measure (Volkmann's Caxankilometer) to both, the anterior superior spinous process of the ilium and the tuber ischii. A partial dislocation of the head of the femur was apparent, the joint was perfectly ankylosed.

It was obvious that a straightening of the extremity could be obtained merely by an osteotomic operation, the resection of a wedge-shaped piece from the femur, to which consent was given.

Operation.—On the 16th of May patient was narcotised with chloroform. The operating table had been cleaned previously, the leather cushions washed with carbolic water; the limb around the place of operation was also cleaned with soap and warm water, brushed and shaved, and finally washed with 3 per cent. carbol. water. Similar attention was given to the hands of the operator and assistants. The instruments and utensils to be used had all been immersed in carbol. water of the same strength, about half an hour before the operation. Every part of the patient's clothing was removed; nothing in fact was permitted to remain undisinfected which might come in contact with the field of operation. And here I may first mention the elastic bands belonging to Esmarch's apparatus, which were applied as soon as patient had become narcotised. After the removal of the elastic roller and the application of the tourniquet, an incision was made 6″ long, beginning from ½″ above the great trochanter, comprising the outer third of the femur. All the integu-

ments, the periosteum included, were at once divided and dissected back on both sides, and held asunder by blunt hooks. A great deal of care was hereby taken to separate the periosteum from the bone with a sharp elevator. Just below the highest prominence of the great trochanter, a wedge-shaped portion was cut out of the bone with a carpenter's chisel and wooden hammer. The base of this resected bone measured 1″ (2½ ctm.). When most of the femur had been cut through, the balance was fractured by force of hand. After the removal of this piece, and in bringing the cut surfaces close together, the extremity could be brought into a straight position and compared with its partner; a difference in length was hardly visible. Bleeding was inconsiderable, soon ceasing. Only two small arterial branches had to be closed by torsion; no ligatures were applied. After the introduction of a silver drainage tube,* the edges of the wound were sewed together with silk sutures. Two large disinfected sponges were used for causing the necessary compression. The whole proceeding, during and after the operation, were executed under the rules laid down in Lister's antiseptic method. The extremity, from the foot upwards to the place of dressing the wound, was then encased in a gypsum bandage, with the object of including the upper part and pelvis hereafter, as soon as the voluminous covering of the antiseptic gauze clothes would permit, a modification of the dressing I had to repent bitterly. Instead of it, I should have finished the whole gypsum bandage at once, leaving a trap for the access to the wound, or should have divided the gypsum bandage in two parts, uniting them with curved splints of tin to secure their immobility.

At night patient received 10 grains of quinine, with ½ a grain of morphine injected intermuscular. Temperature on next morning was 98° F., pulse 84 beats. Patient felt extremely well; no fever set in during the next 2 days. On the 8th day, the 19th, at my morning visit I met him in a high fever, with temperature 103°, pulse 102. The dressing had been disturbed during the night, the wound was partially uncovered and dry; the skin around the edges red. The wound was painted with a solution of chloride of zinc (8 per cent.), and well irrigated with carbolic

* These drain tubes, made of German silver, have been recommended by C. Hueter, in Griefswald. Their use is accompanied with many inconveniences which, besides their high price and the great number necessary, will not supplant those made of india rubber.

water. At night the dressing was renewed under spray; the redness of the skin had extended. No doubt erysipelas had set in (there were at the time several cases at the hospital). Late at night patient was in a profuse perspiration. On the next morning the temperature had gone down to 100°. Patient was evidently improving, and I entertained hope that he would get over the attack, since the redness had decreased under subcutaneous injections with 3 per cent. carbolic water in the neighborhood of the wound. Yet on the 26th, at night, another fever attack had taken place; patient had been delirious during part of the night; the temperature was 103°. Though I had given sharp instructions to the nurse not to leave the bedside of patient and to keep a close watch, he had fallen asleep, and in the delirium patient had again disturbed his dressings, and this time in such a manner, that the drain had fallen out and the bones become disiocated, so that the lower end was sticking out of the wound, which at least would not have happened if I had not committed the mistake in the application of the gypsum bandage, and if a more faithful nurse had been in charge of the sufferer. The wound presented a diphtheritic appearance, was dry and of an offensive odor. A pyæmia multiplex became fully established, by which patient sank rapidly. He died delirious on the morning of 31st in my presence, his temperature having increased to 105°, with a pulse of 144 beats, and a shortened accelerated respiration.

Necroscopic Examination, 6 hours after death.—Abscesses were met with in most all of the cavities and several joints. Effusion in the pericardium. The head of the femur was found subluxated, about half of it overleaping the edge of the enlarged acetabulum and blended together with a secretion of osseous matter, corroborating the diagnosis previously made.

2. *Phlegmonous Inflammation comprising two-thirds of the Left Upper Extremity, the whole Humerus, the Elbow-joint and Upper Portion of Forearm. Amputation.*

Fred. Hoffman, 32 years old, laborer, from Germany, entered hospital in October, 1876. Had been treated in one of the medical wards for rheumatism, and after an abscess had formed on arm was transferred to one of my wards. Different deposits of pus had been detected in the limb; several incisions were made down to the bone and drainage tubes inserted. The wounds

suppurated profusely. The arm was surrounded with compresses saturated with 3 per cent. carbolic water. Some other abscesses formed, which were also laid open. Pieces of necrosed bone were detected at the elbow-joint. Patient began to fail in health, and a resection of the elbow-joint was decided upon. Under chloroform two extensive incisions were made on both sides of the joint. Hereby it was found that a great portion of the humerus, as well as of radius and ulna, were diseased too extensively for a resection. In view besides of the altered condition of the integuments, the muscles fatty degenerated, and the cellular tissue of a gelatinous appearance, the idea of resecting the elbow-joint was exchanged for an amputation. The condition of the integuments of the whole limb was indeed such, that a disarticulation of the arm was first thought of, the more so since a partial ankylosis existed also at the shoulder-joint; yet the great benefit of a stump long enough for the adjustment of an artificial limb, not to mention the danger being greatly diminished in an amputation, induced me to give preference to the latter operation.

The amputation was performed under Lister's method, with the circular cut, about 8 inches below the joint, saving sufficient skin to cover the stump well. The operation was crowned with a perfect success. After the removal of Esmarch's constricting band, a considerable capillary bleeding took place, besides the brachial artery 4 arterioles had to be ligated with antiseptic silk ligatures. The capillary bleeding was arrested with the electric current from a small Gaiffe's machine. The edges of the manchette were united with 6 silk sutures, and 2 drains applied, one in each corner. Notwithstanding the diseased condition of the integuments, union by first intention took place, and 14 days after the operation a complete healing of the wound had taken place, including even the places where the drains, after their removal on the 8th day, had left fistulous tracts. On the 19th the ligatures of the brachial artery came off, whilst those of the smaller branches had been removed a few days previously. Seven antiseptic dressings had completed the whole treatment; most of the clothes were repeatedly used, after having been washed in boiling water and soap and had been again saturated with carbolic water. The wound was constantly covered with a piece of protective.

On the 3d and 4th days the temperature, which had constantly

indicated fever, but had fallen down after the amputation below fever heat, had risen to 103°, yet after the 4th day went down to a normal standard.

The partial ankylosis of the shoulder-joint had not increased, and there was sufficient motion to use an artificial limb with benefit to the bearer.

3. *Compound Comminuted Fracture of Hand by machine. Extensive Laceration of Soft Integuments. Primary Amputation of Forearm. Healing by First Intention.*

Mich. O'Neil, 19 years old, baker, from Ireland. On the 8th of April, 1876, in the morning, his hand was caught between two iron rollers. The skin of all the fingers was completely torn off in shreds, and so the nerves and tendons; the metacarpal bones and phalanges also were crushed and dislocated. The boy was in an apathetic condition, did not complain over any pain. No doubt could be entertained that amputation had to be performed, and the sooner the better. For want of covering material the operation could not be undertaken at the wrist-joint, and my experience, that in such lacerated wounds a portion of the skin flaps commonly becomes gangrenous if too near the wound, made me more anxious to take the covering of the stump at some distance (4") from the wrist-joint. Two flaps were formed, from the dorsal and volar side; they were dissected back, a catline entered into the interosseous space, and the integuments surrounding both bones divided by *one* circular cut (to avoid cutting the arteries on different places). The periosteum was separated from the bone to ½" distance, and with the integuments held back by a retractor whilst the bones were sawed through. The arteries were ligated with catgut. Not a drop of blood so far had been lost, but after Esmarch's constrictor was removed, oozing of blood set in from the whole surface of the wound, which lasted a considerable long time, though ice and tincture of chloride of iron were employed. I finally closed the wound, still bleeding, with 6 carbolized silk sutures. After the periosteum had been pulled down over the sawed surface, the skin flaps were brought in close coaptation, in order to obtain healing by first intention, and not merely did I succeed in this, but it had also the desired effect of arresting the bleeding. The operation, as well as the

dressing of the wound, were performed under Lister's method. I only deviated from it in dispensing with the drainage, because it might have interfered with the object of arresting bleeding. The poor fellow did not recover from his narcotism till he had been dressed and removed to bed, and seemed quite astonished to find himself minus one hand, but submitted to his cruel fate with stoicism on being shown the lacerated corpus delicti. A few hours after the first dressing had been applied, it was observed that secondary hemorrhage had taken place. The bandages were removed under spray, and another replaced which remained 2 days. The wound, as mentioned, healed by first intention, and 9 days after the operation there was only a small spot of the size of a silver five cent piece, in one corner, which had mortified and was still suppurating. Five dressings had completed the cure. Patient had never suffered fever or pain; the sutures had been removed on the 6th day, and the ligatures came away on the 10th and 12th days.

In the subsequent cases I may omit to mention that Lister's method had been used, all operations having been performed under the antiseptic treatment.

4. *Amputation and Re-amputation for the Exchange of a Useless Limb for an Artificial One.*

L. F. Lilienthal, aged 24 years, from Germany, fractured his left leg on the 15th of March, 1876. Patient had the second misfortune to fall in the hands of one of that class of professional pickpockets of which every large city is rich Two hours after the accident of fracturing the leg, this Doctor (?) placed the limb in a bandage, with wooden splints which were tightly (and too tightly !) applied and left therein 3 weeks, after which he exchanged it with a plaster of Paris bandage, in which it remained 8 further weeks. After its removal it was found that gangrene had taken place; portions of necrosed bone were lying between the plaster and the integuments. According to patient's statement, it is more than probable that the mischief had been done by the first bandage, to cover which the tyro smeared it over with plaster to get it out of sight, thinking, probably, that by the time he left it buried nature might come to the assistance of his ignorance, repairing the mischief he had committed. Pa-

tient quitted now his medical ignoramus, and the leg was finally healed with a shortening of one foot and a complete ankylosis of the knee-joint, the limb besides having become perfectly atrophic with a shortening of the gastrocnemii and soleus muscles, so that the foot pointed with its toes towards the floor.

Patient entered the hospital on crutches in May, 1876, with the object of having his limb amputated. As another curiosity he brought with him a machine, which might have served the old Romans as a catapult, weighing about 14 pounds, which had been applied to his crippled limb by another, this time an itinerant quack of some "celebrated surgical institute."

When patient was first examined at the hospital, several large cicatrices comprising the ankylosed knee-joint were seen, beneath which he occasionally suffered pain. In measuring both lower extremities, the place corresponding to the healthy knee-joint was met with about 4 inches below the ankylosed knee-joint. Here the amputation was performed with a circular cut, and the wound healed by first intention, without any fever or suppuration. On the 3d day, a rising of the temperature was observed lasting 3 days, the temperature being 102° F.; on the 4th day, it sank again below fever to 98°. Six bandages had been used up to the time that the ligatures had come away. After the removal of Esmarch's constrictor hardly any bleeding took place, and the arteries were so small as to account partially for the atrophy and the coldness of the limb; the young man presented otherwise an extraordinary adiposity. In ordering an artificial leg, the mechanic declared that he was unable to execute the request except the limb was shortened 8 inches more. Under the circumstances, and the patient being anxious to have an artificial limb made, a re-amputation was performed. This time, the operation comprising the thigh, a flap amputation was chosen, One large flap was taken from the anterior part of the thigh, above the ankylosed knee-joint. Corresponding to this convex flap, the cut through the posterior part of the thigh was made somewhat concave, so that the cicatrix would not occupy the deepest portion of the stump. The operation was, like the former, performed in a deep state of narcotisation with chloroform, and Esmarch's apparatus. This time the capillary bleeding was considerable, but was checked by the faradic current. Under a proper regulated Listering, the wound healed also by first intention without any fever, and the patient could have been discharged

after the lapse of three weeks. In all it had afforded but 6 dressings.

The second operation was performed after a re-admission, in April, 1877. On the 9th of April he was amputated; on the 18th the drains and sutures were removed; on the 25th all the ligatures had come away, and from the 30th the stump was dressed only for protection. A couple of weeks after the rest of the fistules had healed, an abscess formed in the cicatrix which afforded considerable time to heal.

2. *Compound Fracture of the Right Leg. Amputation.*

H. Cosgrove, age 19 years, sailor, from England, had both bones of the right leg shattered to pieces by the breaking of a rope with which the ship was fastened to a towboat. The integuments were also lacerated extending beyond the knee-joint. In order to save as much as possible, even sacrificing thereby the union by first intention, amputation by circular cut was performed right above the knee-joint, which latter was much bruised. Though patient had remained 27 hours in that condition before he was brought to the hospital, and the temperature had risen to 104 F., with a small pulse of 160 beats, 24 hours after the operation the temperature was 99.5, pulse 122, and in a week later a normal condition had set in. Against all expectation, reunion by first intention had also taken place. During the first 4 days the dressings were removed daily, then only every 3d or 4th day; in toto, 9 dressings were afforded to a complete cure.

6. *Compound Comminuted Fracture of Right Leg. Cure.*

F. Bauer, 37 years old, laborer, of New Orleans, entered ward 3, on August 31st, with the injury mentioned, two hours after accident happened. The injury was caused by a big stone thrown at the middle of his right leg. The tibia was fractured into several fragments. One splintered bone had perforated the skin. The wound was dilated and the splinter reduced. After a thorough cleaning, and irrigation of the wound with a 3 per cent. carbolic water, the wound was closed with 7 silk sutures. No drain applied; otherwise Listered, and the limb well secured by splints. A few days later, after the removal of the sutures,

the limb was placed in a gypsum bandage. The wound had healed by first intention. No fever had set in. Three weeks later, after 6 dressings had been applied, the gypsum bandage was removed. A consolidation of the bones had taken place, yet in order to secure the limb against any accident, another gypsum bandage was applied for protection. The man left the hospital in the beginning of November, with a considerable callous thrown around the place of fracture and able to use his limb as before the accident.

7. *Complicated Fracture of Left Forearm, Lacerated Wound on Forehead, Concussion of Brain, Sprain of Right Forearm and several Contusions, a considerable one on Right Hip. Cure.*

John Griffits, 45 years old, painter, fell from a height of about 30 feet whilst painting a house. Shortly after the accident he was carried to ward 3 in a drowsy condition; fell into a spasm lasting a quarter of an hour. The wound on forehead was bleeding profusely, gaping, the periosteum detached from the bone, so that the skull could be examined. No fracture was detected. This wound, after it was well cleaned and irrigated, was closed with 7 antiseptic silk sutures, and healed by first intention. The fractured arm was next attended to; both bones were fractured beneath the pronator quadratus. After the bones had been properly replaced, the forearm was laid in a wire splint and cold irrigations ordered. The other contused places were also covered with carbolic clothes, and ½ grain of morphia injected intermuscular. A few days later, after the swelling had subsided, the splint was exchanged with a gypsum bandage. The other sprained forearm was masserated and also placed in a gypsum bandage. All went on smoothly. The sutures on the forehead were removed on the 3d day. No fever had set in under the antiseptic treatment, and 9 weeks after the accident the man left the hospital without any deformity or complaint; even the cicatrices on the head were hardly visible.

8. *Ankylosis of the Left Elbow-joint, caused by a Dislocation of the Radius. Resection of Joint. Recovery with a Useful Arm.*

Tom Bryan, 93 years old, laborer, of Mississippi, fell from a

scaffold 6–7 feet high, striking his elbow. Nine weeks after the accident he could hardly bend his arm, which induced him to see a "doctor." The arm was bandaged under a right angle at the elbow, and in that bandage it remained 3 weeks. Discharged, the man tried to again straighten his arm, in which he finally succeeded, but in which position the arm remained ever since, it had become ankylosed and useless.

Status Præsens.—The arm was perfectly ankylosed at the elbow-joint, neither pronation nor supination possible; the head of the dislocated radius could be felt upon the external condyle of the humerus, enlarging thereby the joint. A resection being the only operation possible to render the arm again useful, the patient consented to it willingly.

Operation was performed on the 28th of Sept., 1877, under chloroform. After the skin of the arm had been well cleaned and disinfected, and Esmarch's constrictor applied, an incision down to the bone was made 16 cmt. (6″) in length over the external condyle, the periosteum was dissected off and pushed aside with an elevator. The capitulum radii became exposed, occupying the middle of the incision closely attached to the condyle. The radius had not been fractured, but had become merely dislocated. 7½ ctm. (3″) were sawed off. It became apparent that the ankylosis was more extensive, and that both condyles would have to come off, in order to establish a limb moveable at the elbow. Another incision, over the internal condyle was made, and both condyles sawn through in an oblique direction, so that a portion of the fossa olecrani with the entire olecranon was left behind. This operation may therefore be classified amongst the *partial resections*, a method which of late has been warmly defended and advocated, as primus inter pares, by my eloquent friend C. Hueter, the celebrated surgeon of Griefswald, and able editor of the famous books "General Surgery" and "Diseased Joints." The triceps muscle of course was not touched. The mobility at the elbow, after the resection of the above mentioned portions of the humerus, was perfectly free and complete. After the removal of the constrictor a considerable oozing of blood set in, yet only one artery had to be ligated with catgut. The extensive wounds and cavity were well irrigated with 5 per cent. carbolic water a considerable time after the spray had ceased, under the constant action of which the tedious operation had been performed. The ulnar nerve was not exposed. Two drain tubes

were laid through the cavity above and below, and cut off on both sides close to the skin. The balance of the wounds were accurately closed with antiseptic silk sutures, and dressed accordingly. The arm was laid on a curved splint, so that the internal wound was kept free, did not touch the splint. An intra-muscular injection of ½ grain of morphia ended the proceeding.

During the night the bandage had become saturated with blood. After its removal, under spray, the arm was wiped with antiseptic cotton from the adherent blood, and rebandaged. The drains were filled with blood, but no further oozing of blood took place. Patient had not the least fever or pain, and felt comfortable.

The 3d day visit met patient still without fever; the dressing was not disturbed, but a dose of purgative salt ordered against patient's 4 days' costiveness.

October 1st (4th day). No change in temperature; dressing renewed, and all sutures from the internal wound removed. Healing by first intention had taken place. Not much swelling around the elbow observable.

October 2d. Temperature 37.5° C. Dressing untouched.
" 3d. " 38° C. " "
" 4th. " " " " "

October 5th. Temperature 37.5 C. Dressing renewed. The last 6 sutures from the external wound were removed. In the stitches not a drop of pus was visible. This wound had also healed by first intention.

October 9th. Dressing changed. The drain tubes were removed; they were yet filled with blood, which when taken out formed an elastic mass. Some secretion had taken place, yet not a drop of pus had been observed. The blood filling out the cavity had become organized. From now the dressings were changed only once every week, and at the next renewal the fistulous openings left by the removal of the drain were perfectly closed, though they had remained in the wounds 4 days beyond the time it is advisable. A humid scab covered the cicatrices, and on the inner cloth a few drops of secretion were visible.

October 26th. All secretion had ceased; the cicatrices were linear and drawn in. Patient could lift his arm, and move it at the elbow to some extent without causing pain. The arm was

laid in an interrupted gypsum bandage, united by two iron bands moveable in the middle by a charnier joint.

November 15th. Patient was discharged, all bandaging removed, but advised to exercise the new joint freely, also moving the fingers frequently which had become quite stiff.

Patient presented himself every 14 days at the hospital, and had in January last a most useful arm, which hardly reminded him of a difference in comparing it with its fellow. We may call it one of the ideal successes of Lister's method.

(The balance of these cases will be reported in subsequent numbers of the *N. O. Medical and Surgical Journal.*)

A CASE OF TETANUS CURED BY THE CALABAR BEAN.

BY W. G. JOHNSON, M.D.

Charles Peace, a well grown, vigorous boy, aged 17 months, was violently thrown against a sharp flint-stone, striking his head, and cutting a gash about 1½ inches in the long axis and another in the short axis, running downward about an inch, dividing the entire thickness of the scalp. The wound was situated on the right parietal and frontal bones, about a quarter of an inch below anterior fontanelle. The fall produced no head symptoms, no jarring or concussion. The hemorrhage was very profuse. I saw him about one hour after the accident; he was eating candy and playfully enjoying himself.

The edges of the wound were gaping and separated fully a quarter of an inch, the wound forming the letter L. To stop the bleeding his father had filled the wound with soot and ashes, which made the cleaning of the wound tedious and difficult. After cleansing the wound, I drew the edges together and applied court plaster, to hold them in apposition. He had no fever, was reported doing well for some four or five days, when his father stated that the wound was puffy and offensive. I had him brought to my office, and upon removing the dressing the wound discharged about half an ounce of very fœtid pus. I cleaned it well, and applied the antiseptic dressing. He rapidly improved, and on the 12th day was reported about well; the wound had scabbed over. On the night of the same day he was restless and fretful, and on the morning of the 13th day it was reported that he was

not so well, that his eyes were swollen, and his jaws a little stiff. I saw him on the dext nay, the 14th from the injury, and found marked symptoms of trismus. ℞—Hydr. sub. M., grs. v.; podophyllin, gr. ½; to be given at once, to be followed by dose of castor oil. The medicine acted well. ℞—Potassium brom., grs. v. every four hours. Next day, worse in every respect; jaws firmly fixed; muscles of face and neck rigidly contracted; features very much contracted. ℞—Squibbs' fluid extract Calabar bean, ¼ m. in camphor water every four hours. Continue bromide. Sweet milk ad libitum.

On the next day, 11th January, and the 15th day from the fall, he was evidently worse in every particular; increased Calabar bean to ½ m. every four hours; had slept very little two last days and nights. Continue milk as food.

January 12th. Symptoms much worse, opisthotonos occurring frequently; no sleep. ℞—Hydr. sub. m., grs. v.; podophyllin, gr. ½; to be taken at once; increase the Calabar bean to 1 m. every four hours; continue bromide; at night to have chloral hydrate, grs. v., with v. grs. bromide pot.

January 13th. Still growing worse; muscles of abdomen, chest and neck, contorted; increase Calabar bean to 1¼ m. every four hours; after second dose, signs of its affecting him—contracted pupils, slow, irregular pulse, perspiration, etc.

January 14th. Symptoms about the same as yesterday; spasms not so frequent, nor so rarely excited; slept well last night. He drinks about one pint of milk in the 24 hours. Increase the Calabar bean to 1½ m. every four hours. Evening.—He is completely under the influence of the bean, indicated by contracted pupils, slow, irregular pulse, cold skin, and free perspiration. Spasm almost suspended; rigidity still continues. Full dose of chloral and bromide at bed time.

January 15th. Is evidently better; slept well all night; has had no spasm since last report; rigidity not so great; more appetite; drinks 1½ pints of milk in 24 hours. Continue the Calabar bean.

January 16th. He is evidently better; spasms have entirely ceased; slept well all night and is sleeping this morning; muscles all relaxed in sleep, but quite rigid when awake. ℞—Enema of castor oil; continue Calabar bean. Evening.—Enema acted well; still under influence of medicine; repeat chloral and bromide at bed time.

January 17th. He is much better in every respect; no spasm for three days; sleeps well; appetite good; muscles rigid when awake, but relaxed when asleep.

January 18th. Rigidity much less in abdomen and chest; no change in neck and face. Continue medicine.

January 19. Patient still improving; muscles relaxed except neck and face; appetite good; is playful. Continue medicine.

January 20th. He can separate his teeth a little; improving in every respect. Continue medicine.

He continued to improve for the next ten days. The medicine was continued five days longer in same quantity, and then gradually withdrawn. The masseter muscles were the last to yield. A stiff neck and difficulty in working the jaws continued several days after all other symptoms had passed away. He has entirely recovered, is as active and lively as he ever was. When he first began to walk he was very stiff, and had frequent falls. During the whole course of the disease, he was entirely free from fever and head symptoms. After he got under the influence of the Calabar bean, his pulse was never above sixty.

A LARGE FIBROID TUMOR OF THE UTERUS REMOVED.

BY O. P. GREENWOOD, M.D,

On the 7th of September last, I was called four miles into the country to see Mrs. B., æt. 40 years, a widow of nine or ten years' duration, and mother of four children aged respectively ten, twelve, fifteen and seventeen years.

I found this lady rather emaciated and pale, much troubled with indigestion, acid stomach, vomiting food frequently soon after taken, eructations, constipated bowels, etc. In addition to this, the lady had for many months been subject, about semi-monthly, to severe attacks of uterine hemorrhages, continuing usually four or five days, these leaving the patient more or less prostrated. She had been under the care of other physicians, who had treated her mainly for menorrhagia, and that, too, without minute examination. But remedies for the hemorrhage had not been of benefit. The abdomen had been gradually enlarging for several months, and on external examination resembled a woman five or six months pregnant. In truth, not-

withstanding the lady's unmistakable good character, undoubted virtue and veracity (for she is of one of our best families here), I am frank to say that upon first applying my left hand to the hypogastric region I was alarmed, fearing that the good lady had been led astray. A digital examination of the vagina and os, however, soon dispelled all alarm.

I found the os dilated to at least two-thirds of its full or possible dilatability, and a large tumor protruding partially through it in its posterior region. A gutta percha bougie, well wired and point partially curved, was introduced exactly in the inner surface of the posterior wall of the uterus. It passed readily upward without resistance to the fundus; then it met with obstruction, but could be easily moved or turned on either side of the tumor to within two or two and a half inches of the anterior centre of the uterus, there being no resistance either in the cervix or body. An exploring needle was introduced through a Sims' speculum, which with the sense of touch in connection, enabled me to diagnose a fibroid tumor in the uterus attached to the fundus, and also a sessilated attachment, about two and a half inches broad, in the anterior wall of the uterus, and extending down the whole length of that organ.

Treatment. The deranged condition of the alimentary canal in this case required that remedies should at first be addressed to the organs of digestion, consequently alteratives, stomachics and laxatives were administered, the menorrhagic symptoms being left to themselves. This line of treatment occupied one month's time, when, with the hope of its oxytocic or ecbolic influence, I prescribed fluid extract ergot, in two drachm doses morning and evening, with hip baths and laxatives at bed time. For this latter, I found the patented "Brandreth's Pill" answered an admirable purpose.

One month was occupied in this mode of treatment, except that the hip baths were discontinued, the semi-monthly hemorrhages seeming to be aggravated by them. The ergot, after one month's trial, failed also to produce any effect, the tumor remaining in situ and apparently as I first found it.

Removal of the tumor was now resolved upon.

Being poorly provided with instruments, having no ecraseur or other very suitable instrument, I could do no better than to resort to the use of the Hodge obstetric forceps. The patient being well chloroformed, these were applied in the posterior

region of the uterus, and the tumor being rather deeply fissured, it was seized in (as I could best tell) about its posterior third and rudely broken down, the forceps withdrawn, and these portions removed with the fingers of the right hand while the left supported the hypogastric region. The hemorrhage was slight; the protracted influence of the chloroform, coupled with the strong uterine contractions, produced doubtlessly by meddling with the contents of the organ, obliged me to desist. No peritonitis or metritis ensued. A very offensive discharge, however, supervened, for which warm water, heavily charged with carbolic soap was pumped well into the organ twice or thrice daily, and the ergot resumed with cognac brandy.

Two weeks elapsed, the patient somewhat recuperated, when another alarming hemorrhage occurred. This having subsided, the operation for removal was again undertaken after the fashion above detailed. On this occasion another section, equal or greater than the first, was removed, and for the same reason as before I was obliged to suspend further operations, and resort to ergot and brandy for a period of another fortnight; then, as before, excessive flooding occurred, endangering the very life of the patient.

This, now the third effort at removal, was undertaken. Notwithstanding the free use of ergot the womb had not contracted, and so, on this occasion, the forceps were laid aside. The fingers and hand being well oiled, were introduced into the uterus, and with the fingers the entire attachment in the fundus was broken down, and the index and middle fingers reaching the sessilated attachment, two or two and a half inches broad (as before stated), in the anterior wall of the womb, was gradually by manipulation destroyed and the whole mass removed, weighing ten ounces avordupois.

One very remarkable feature in this case is, that notwithstanding a fibroid tumor weighing at least twenty five ounces had formed in the uterus, extending from the os tincæ to the fundus, had sojourned there I know not how long, perhaps twelve or eighteen months, and yet no inflammatory ulcerations of the cervix complicated the affair.

True, the inflammation which complicated this fibroid tumor did create an open and an expanded condition of the os, yet there was no ulceration of the lips, and the patient did rally well

soon after the removal of the tumor, and is now, three months after operation, in good moderate health.

In conclusion, let me suggest that in cases of fibroid tumor, of whatever bulk, and however much the patient's health may be deranged, nothing should or ought to deter us from removing it, even if rude means, as in this case, have to be resorted to.

Eldorado, Ark., February 13th, 1878.

THE FORCEPS IN OBSTETRICS.

BY ROBT. E. RICHARDSON, M.D.

Editors N. O. Medical and Surgical Journal:

Appreciating the importance of sustaining Southern medical literature, and deeming it the duty of medical gentlemen throughout the country to do so, by the pen as well as by moneyed subscription, I enclose you memoranda of a few cases, to publish or not, as you deem best, having no special desire to appear in print.

My purpose is to urge on country practitioners especially, the very great and, indeed, indispensable necessity, in obstetric practice, of the knowledge and use of forceps. A large majority of country practitioners never use the forceps at all, and very many do not own a set. If the cases, all of recent occurrence in my own practice, shall serve to impress the very indispensable part in the conflict of life and death, favorable to the life side, which the timely and judicious use of the obstetrical forceps plays in cases proper for their use, I shall be more than compensated.

In the month of October, 1875, I was requested to visit a negro woman in labor with her fourth child. The others had been natural, and at no time in the progress of the labors had the slightest trouble existed. The woman had been in labor for two nights and one day when I was called to see her. On reaching the bedside, I found the woman bearing down heavily, and proceeded to examine, by the touch, as to the exact state of affairs, but too late. I had scarcely introduced the finger when the uterus, at the right anterior portion, burst, and the child escaped into the abdomen, from which it was easily extracted, by the feet, through the vagina. The placenta was easily taken,

but, though I gave the woman extra attention, she died in fifty-six hours. Had I been called to this woman an hour, or even fifteen minutes sooner, her life and that of the child might have been saved by the obstetric forceps.

On the 29th of December, 1877, I was called to Mrs. ——, one mile from town, and found her in the first stage of labor—primipara. The pains continued, as customary, until Saturday night, 3 o'clock, when I was called again. First presentation, os high up and undilated, pains irregular and strong, and vagina dry to an extent I never saw before. Opened the bowels, which were constipated, and applied olive oil freely to soften and soothe the vagina. The pains continued all day Sunday and Sunday night, in frequency and in force, the head descending low down in the pelvis, but no dilatation of the os, which was resting on the perineum. So violent and exhausting were the expulsive efforts, that the pulse was running at one hundred and sixty one, and convulsions occurring lasting six minutes, with no relief from chloroform and morphine, which I had freely used. Fearing rupture every moment, I endeavored to dilate the os, which was not larger than a silver quarter, with my fingers. Steel wire can alone convey a proper idea of the rigidity of the os externum. Explaining the situation to the lady's husband, and to his mother and father, I suggested as the only hope to cut the wiry edge of the external os, and deliver at once with the forceps. I did the first with a probe-pointed bistoury, well wrapped nearly to the point, and guided by the index finger, nicking the os quickly, laterally and in front; then I introduced the forceps, and delivered a nine and one-half pound girl baby in less than five minutes. At first the child was apparently dead, but was soon resuscitated, and is to-day as promising a child as I ever saw. The bladder was paralyzed for ten days, requiring the daily use of the catheter. The pulse did not fall below 158 for seven days; it is now natural, and the lady sitting up. I am aware that I may be criticised for cutting the edge of the uterus, but feel perfectly justifiable under the circumstances, and offer the life of the mother and child in justification. The forceps could not have been used, had I refused to cut the wiry edge, *which would not dilate.* After the edge was incised, with a pulse of 160 and convulsions, the woman could not have expelled the child; and even had it been possible, which I do not believe, the delay would have been fatal to the child, which was appa-

rently dead when delivered. I attribute the existence, to-day, of mother and child to the forceps, for the woman, left unaided, must have died of exhaustion, convulsions, or rupture of the uterus.

At 3 p. m. of January 10th, 1878, I was requested by a gentleman to visit his wife in labor, seven miles in the country, who had been insensible since 10 a. m., with convulsions recurring every 15 minutes. This case was also one of primipara. Reaching the case 15 minutes past 5 p. m., I found the patient, as stated, insensible and with convulsions occurring in rapid succession. Dr. Moffett, who had been in the house all day and the night before, informed me that no progress whatever had been made since convulsions commenced. On examination, I found the os soft and dilatable. Gave hypodermic injection of sulph. morph., followed by inhalation of chloroform, to control the convulsions, introduced the forceps and delivered a seven pound boy. Only two convulsions occurred after delivery, which was before half after five—one soon after delivery, the second and last one hour and ten minutes afterwards. The lady gradually returned to consciousness, and at 5 p. m. next day was in good condition, and has gone on favorably since. Mother and child both in first-rate condition to-day.

These cases suffice to show how important it is for physicians, in the country especially, to study the value of obstetric forceps in such cases, not only in view of the benefit thus assured to the woman and child, but to their own credit and the honor of the profession.

Fayette, Miss., January 22d, 1878.

ON THE PREPARATION OF EXTRACT OF MALT.

BY LOUIS GENOIS.

Although it is hardly probable that the average pharmacist will ever be called upon to make his own extract of malt, and it will therefore continue to be, as it now is, an item in the list of large manufacturing chemists, still, as it is becoming very popular as an efficient remedy in a large class of diseases, the fact that it can be made on a comparatively small scale should be known to them all.

The extraction of the soluble and active constituents of malt is an easy performance, though somewhat tedious; it consists essentially in subjecting well malted grain to the successive action of cold and hot water, the former to disintegrate and divide it, the latter to promote the conversion of the starch into dextrine and malt sugar, through the influence of the diastase always present in malt; and finally, in evaporating the infusion obtained to a suitable consistence; care, however, being required, that the temperature at which the evaporation is carried on is not so high as to alter any of the proximate principles, and that the application of heat be not direct from a naked fire. I have, in the last six months, made several hundred pounds of it, and would recommend, where no special apparatus is already on hand, the following adaptation of the common utensils of an apothecary's laboratory. Owing to the time necessary to have everything in readiness, and the thorough cleaning up of every implement used, which indispensably follows each operation, I do not think it profitable to work on less than three or four bushels at one time, and will therefore base my directions on the latter quantity:

Take of well malted Canada barley, previously reduced to a coarse powder, four bushels; put into a wooden tub, and macerate in twelve gallons of cold rain water for about eight hours; add eight gallons more of water and digest for two hours, which may be done in a double jacketed kettle by passing steam through the chamber; then raise the heat until the mixture boils; continue the boiling for ten minutes more and then withdraw. Into a perfectly clean barrel provided with a perforated false bottom, resting about three inches above the true bottom, and a faucet inserted between them, pour the contents of the vessel, after which follow with hot water until the runnings, or "wort," is nearly colorless (pale straw color); then evaporate the whole until it has assumed a thick syrupy consistence, and possesses a distinctly sweet taste, free from acridity. The evaporation should be conducted in a porcelain lined dish, and at a temperature not exceeding 180° Fahr.

Prepared in this way, extract of malt is of a rich light brown color, almost clear, and is equal in flavor and taste to that prepared in vacuo. In order, however, to bring it up to the modern standard of pharmaceutical preparations, it must needs be mixed with a number of other medicinal substances, and

the "combinations" to which it is assigned are as numerous as they are unnecessary; but presuming that all pharmacists are familiar with the manner of ferrating, iodizing, etc., such preparations, I shall merely remark that it makes a beautiful emulsion with cod liver oil, which, however, may or may not improve its value as a remedy.

Laboratory of Frederickson & Harte, New Orleans, March 7th, 1878.

PLACENTAL DELIVERY.

BY DR. J. F. GRIFFIN.

Editors New Orleans Medical and Surgical Journal:

It seems strange, with the present advanced obstetrical knowledge, that any one should oppose the early and speedy delivery of the placenta, as advocated not only by Dr. D. Warren Brickell, but by most if not all the leading obstetricians both in this country and in Europe.

Dr. Brickell was *among* the first, if, indeed, not the very first to abandon the old routine, and to strike out a new path based upon known physiological laws.

Dr. H. Roberi, who writes a brief article in your February number, while he admits that after delivery the placenta is a foreign body, declares that Dr. Brickell's plan is inadmissible.

Your correspondent has had a good deal of talk with medical men upon this method, and has never found one who opposed it. In his own observation, he has found the plan to work better than the old tedious way of awaiting the process of nature. Such is also the experience of my partner, Dr. S. O. Scruggs, whose obstetrical practice is of long standing and quite extensive.

Dr. Brickell's plan is to wait about half an hour, after fœtal delivery, and if the placenta is not delivered, to introduce the hand into the uterus, and thus excite contractions in that organ, and as it contracts, withdraw the hand with the "foreign body" along with it.

The logic of facts is so palpable in this matter, that argument seems almost useless, and the writer will attempt none, referring every one interested to what Dr. Brickell himself has so clearly written upon the subject.

Dr. B. objects to the use of ergot, or any oxytocic, depending exclusively upon the forceps. Nor is it probable he would give ergot to expel the placenta.

There can be no doubt of the efficiency of this agent to prevent *post partum hemorrhage.*

Dr. H. C. Wood, of Philadelphia, says: "After labor, if a tendency to bleeding is manifested, the exhibition of ergot may be added to the other measures employed. Its hypodermic use, under these circumstances, would be eminently proper."

The writer trusts that he will not be construed as criticising Dr. Roberi's remarks, but only as corroborating the opinions of Dr. Brickell, as consistent with recent observations and advanced physiological knowledge.

Clontierville, La.

CURRENT MEDICAL LITERATURE.

PARACENTESIS OF THE CHEST IN PLEURITIC EFFUSION.

Dr. Henry Barnes ("On the Value of Paracentesis of the Chest in the Treatment of Pleuritic Effusion," *British Medical Journal*, December 1st, 1877) publishes eleven cases of pleurisy in which paracentesis was eminently successful. The cases were three of simple acute pleurisy, relieved and cured by a single operation; two cases of acute pleurisy occurring as a complication of enteric fever, in each of which paracentesis was performed three times with complete recovery; and in the three cases of chronic pleurisy two recovered after one operation; the third had paracentesis performed fourteen times, Dr. Barnes considering the pleura had lost its absorbing power from the considerable stretching it had undergone through long neglect of the case. In the treatment of empyema, Dr. Barnes speaks highly of paracentesis. He reports three cases; in one necrosis of the parietal pleura occurred; a double opening was made and a drainage tube inserted, and the cavity washed out by a weak solution of carbolic acid. The third, one of traumatic origin, was complicated with pneumonia. After recovery, the affected side in the first case measured $\frac{7}{8}$ of an inch, in the second $1\frac{1}{4}$ inch, less than the sound side. Dr. Barnes considers that the danger of purulent transformation is entirely obviated by the perfection of the instrument used, the entrance of the air into the cavity of the pleura being thereby prevented. He thinks in left-sided pleurisies operation should not be long delayed, and in all cases where dyspnœa is urgent there is more danger in delay than in operat-

ing. He makes a rule to operate at once, without waiting for urgent dyspnœa to set in, in cases when the chest is two parts filled with fluid; but if but half full he waits, and tries the treatment by rest and iodine applications and diuretics, which is frequently successful. He recommends the use of Potain's aspirator, and that the puncture should be made in a perpendicular line with the angle of the scapula, in the eighth or ninth interspace, and an inch and a half above a horizontal line drawn through the lowest point at which the respiratory murmur is distinctly heard on the other side. His practice is also to withdraw as much fluid from the chest as possible. For after treatment, he recommends iodine applications externally, and diuretics.—A. M. H., *London Medical Record.*

MOULARD ON AN APPARATUS FOR TRANSVERSE FRACTURES OF THE PATELLA.

Moulard describes in a thesis (1877) an apparatus invented by Dr. Duplouy for transverse fracture of the patella, and of which he has seen the good effects at the Rochefort Hospital.

The description of this apparatus is as follows. Dr. Duplouy, chief surgeon to the Navy, employs small bands covered with collodion as a means of holding the fragments together in fractures of the patella. He envelops the lower segment of the limb with a silicated bandage, reaching half-way up the thigh, but open in front and at the sides of the knee. This bandage is applied over a thick layer of cotton-wadding. Below the popliteal space he places a padded wood splint, which reaches half-way up the thigh, and descends half-way down the leg. When the silicated bandage is completely dry, he brings the fragments of the patella together in the following way. Threads of knitting cotton, each about twelve inches long, are placed in juxtaposition in a sufficient quantity to form a bundle four-tenths of an inch in diameter. He immerses the middle portion only of this bundle in collodion; then he arranges an upper bundle, of which the whole is applied four-fifths of an inch above the upper semi-circumference of the patella, forming a concentric curve around it as far as the level of the transverse diameter of the bone; a lower bundle is arranged in the same way at the lower part of the patella. Thus the two bundles are inclined the one towards the other, and the patella is completely surrounded. Several layers of collodion are then applied with a brush over the maintaining bundles and the skin above and below. The apparatus being thus arranged, the collodion is allowed to dry completely, and the free tails are brought together and tied two and two on each side of the patella. In proportion as the distance between the two fragments is lessened, the ends are drawn closer. Care must be taken to add every day fresh layers of col-

lodion above and below, to maintain the solidity of the apparatus.—*London Medical Record.*

FRACTURE OF A RIB BY COUGH.

Gilette (*L'Union Médicale*, 75, 1876. *Allg. med. Central-Zeitung*, 43, 1877) reports a case. The patient was a painter, suffering from advanced tuberculosis of the lungs. During a fit of coughing he completely fractured the eleventh rib on the left, without special subjective symptoms. Autopsy confirmed the diagnosis. Whilst collecting the examples of fracture by severe muscular exertion, Gilette calls attention to the fact that the ætiology of these spontaneous fractures is closely associated with the constitutional affections of the individuals (syphilis, scrofula, etc.). The author, as a hitherto unmentioned cause, proposes lead poisoning, and reports the case of a house painter, who was accustomed to use lead, who during his life had suffered eighteen fractures.—*Boston Medical and Surgical Journal.*

ELEMENTARY ADVICE TO MOTHERS AND NURSES.

At a meeting of the *Societe Medicale de Reims*, M. Bienfait read a draught of the advice to be given to mothers and nurses by the Society for the Protection of Childhood.

"*Nursing.*—The duty of a mother is to preserve the life of her infant by suckling it from her own breast, or, if her health will not permit of this, by providing for it a nurse. If it be absolutely impossible to give the child human milk, or if this be insufficient in quantity, it ought to be supplemented by the milk of some animal (cow, goat, etc.), for *milk is the only nourishment suitable for a child* during the early months of life. Animal milk ought to be given under those conditions which render it most like the mother's milk. It should be taken as far as possible from the same animal. It should be given, still warm, soon after it is drawn, unless it be taken fresh, in a glass which has been thoroughly cleansed between the time of milking and that of the meal. It should never be boiled. It should be diluted with slightly sweetened water, warm enough to bring the mixture to the temperature of the body (37 degrees centigrade; 98.4 Fahr.). The dilution should be made at the time of each meal: with one half water during the first week; one-third water during the three following weeks; one quarter water afterwards up to the fourth month. Dating from this time it should be given warmed in a water bath, not diluted, but with the addition of a very small quantity of sugar. Glass vessels only should be employed for drinking (feeding) purposes, and they should be scru-

pulously cleansed after each meal. The remainder of one meal should never be offered to the child again. The hours of feeding ought to be regulated. During the day a meal every two hours is necessary, but an interval of 4 or 5 hours between the meals from the middle of the night should be reserved for the rest of the nurse. After the sixth month various milk gruels may be given, or light paps of cheese farina. About the end of the first year fat (meat) soups may be taken occasionally whilst still continuing the milk. The child will thus by degrees be prepared for weaning.

"*Weaning.*—The weaning ought to be made after the eruption of from 12 to 16 first teeth, taking into account besides the season of the year and the health of the child. Even after weaning, animal milk ought still to enter largely into the diet up to the age of two years, at least.

"*Toilet.*—Each morning, before the first meal, the child should be washed from head to foot, with water rather fresh than hot, and have his linen changed. Where needful, a hair brush and oil should be used every day to prevent the formation of *bouzet*, which is only an injurious crust (dandriff). Washing of the lower part of the body should be repeated as often as it becomes soiled with urine or the stools.

"*Clothing.*—The clothing will vary so as to protect the child from variations of temperature. The garments should always be large enough to permit of the greatest freedom of movements. The belly-band (binder) should form part of the clothing during the first months.

"*Bed.*—The mother and child should never sleep in the same bed. The cradle should be scrupulously clean; the air and the light should circulate freely around it; the curtains should be light, and should never be closed except on the side from which currents of air, too great heat of the sun, or that of a fire, might incommode the child.

"*Exercise.*—During the first days the newly-born should be held in the arms or on the knees for some hours; but, unless in an exceptionally mild temperature, should not be taken out before the fifteenth day. After this first going out it should be carried out every day during the mildest hours These walks, short at first, should be gradually increased, the prolonged action of a pure air favoring in a high degree the development and health of the child. The day should then be divided between long sleeps and long walks at regular hours. In the intervals the child should be laid upon the floor upon a blanket, free to move and roll about. He will thus learn to raise himself alone, and to walk when the time comes without running the risks which the use of carriages and wheeled panniers, etc., entails. The midday sleep should be continued up to the age of three years at least.

"*Medical Requirements.*—The child should never be offered the breast of a nurse, other than the mother, unless she has been examined by a physician. Vaccination ought to be done by the age of five months; sooner in case of small-pox epidemics. The preceding rules will only admit of very rare exceptions; they should not be departed from in any particular without the advice of a physician. Every indisposition of the child lasting over twenty-four hours imperiously demands the attention of a physician."

This instruction was adopted by the Society—*Canadian Journal of Medical Science.*

IODOFORM.

M. Cuffer, in *La France Medicale*, speaks highly of the therapeutic effects of iodoform as an external application. He states that although no very appreciable benefit has followed its internal administration, its topical influence is very evident. Iodoform has a double action—anæsthetic and cicatrizing. Its anæsthetic properties render it useful in anal fissures, hœmorrhoids, ulcerations of the throat and ulcerated cancers, especially those of the face, mouth, breast, and cervix uteri. It is necessary to use the remedy in fine powder, and to apply it carefully to all the diseased surface. The simplest way to obtain it in fine powder is to dissolve it in ether and allow the latter to evaporate. In using it for hœmorrhoids it should be made into suppositories. It can be applied without danger in considerable doses, no bad effects having resulted from its use.

Its cicatrizing action is astonishing in its rapidity. Soft chancres, ulcerated buboes, mucous patches, and syphilitic ulcers of any kind, yield to it. Phagadenic ulcers are often arrested in their course, and onychiæ are cured in a few days. Scrofulous sores, lupus and epitheliomia of the lip have shown remarkable amelioration after its application. Inflammatory symptoms disappear, and exuberant granulations lose their unhealthy aspect, the progress made towards cure in a single day following the use of iodoform being often astonishing. Its penetrating odor is a great objection to its use, but nothing that has been tried as a substitute has given corresponding results. Its application requires certain precautions. The first, is to apply it after thoroughly cleansing the wound. This may be done with the spray of warm water. Then the powder is applied and the wound covered with lint, the dressing being changed daily or twice a day at first, the intervals being gradually lengthened as the cicatrization progresses. It may be applied to the throat, or to the neck of the uterus, by dissolving it in ether and using the spray apparatus. (Tannin is said to disguise the smell of iodoform.)—*Canadian Journal of Medical Science.*

A NEW OPERATION FOR FRACTURE OF THE PATELLA.

In a case of transverse fracture of the patella, Mr. Lister cut down on the fragments, opening the knee-joint, cleansed the surfaces of the fragments, and, having established an independent drain of horse hair for the knee-joint, drilled the two portions of the patella and tied the fragments together with silver wire, and then closed the wound, which was also drained with horse hair.

This operation was performed six weeks ago; the wound, as exposed to-day, was seen to be completely healed, the ends of the silver wire projecting through the scar. The highest temperature that had occurred was 100 deg. Fahr. on the morning after the operation. There has been no disturbance, constitutional or local, and both the wounds healed in about a fortnight.

The limb will be kept at rest for another fortnight, when, if union have taken place, the wires will be withdrawn.—*British Medical Journal.*

THE AUTOMATIC METHOD OF REDUCING LUXATIONS OF THE HIP.

In October last there was admitted to Dr. Crosby's wards in Bellevue Hospital a typical case of dorsal luxation (the toes resting on the opposite instep, there being very marked rigidity present, and adduction being entirely impossible), but which had been diagnosed as one of fracture of the neck of the femur within the capsule, by a physician outside, and treated as such for about thirty hours previous to admission. Under these circumstances, he resolved to at once adopt the following plan. The patient, having been placed on his back upon a blanket spread upon the floor, was thoroughly anæsthetized, in order to obtain complete muscular relaxation, and the legs were flexed at a right angle upon the thighs, and the thighs similarly flexed upon the pelvis, for the purpose of removing the strain from the ileo-femoral or Y ligament. Dr. Crosby then placed his hands under the calves of the legs, quite near the knees, and raising the pelvis a short distance from the floor, made very slight adduction of the affected limb, when in about half a minute from the commencement of the manœuvre he had the satisfaction of feeling the head of the bone slip into its normal position. He explained that in this procedure the patient was made to perform the reduction himself, a sort of *felo-de-se*, as he termed it; the weight of his body supplying the extension, while the counter-extension was made by the operator, who performed simply the office of a post, though an intelligent one, to be sure. The method was first described to him by a friend of his in Vermont, Dr. J. G. Allen, who had hit upon it accidentally

about two years ago, while in the act of lifting a patient suffering from this dislocation, so as to get him into a suitable position for performing the usual manipulations attempted for the reduction of the deformity. Since then he has adopted the same course, with equal success, in two other luxations; so that Dr. Crosby's makes the fourth case in which the procedure has been employed. So far as Dr. Crosby has been able to ascertain, these are the only cases in which it has ever been done. In Dr. Bigelow's admirable monograph on luxation of the hip (a copy of which, strange to say, he found it difficult to lay his hands on in New York), he found that the same position was used in a number of instances there recorded, but the method pursued was always different from that which he had ventured to call the automatic.—*Philadelphia Medical Times.*

CARBOLIZED CATGUT LIGATURES AND THEIR EFFECT UPON THE HUMAN ARTERIES.

At a recent meeting of the Clinical Society of London, Mr. Bryant instanced some cases from his own practice, which, with drawings and preparations, are calculated to aid in solving the question whether catgut is an appliance that should merit general use. His first preparation was taken from a patient in Guy's Hospital, who had been suffering from aneurism of the right femoral and ulcerative endocarditis. A catgut ligature was applied to the external iliac artery, but death occurred from the heart affection fourteen hours subsequently. The inner and middle coats of the artery were found, on post mortem examination, to be completely divided by the ligature, and the external coat partly. Below and above the ligature were clots, and the catgut was intact. The second preparation was taken from the right common carotid, to which a ligature had been applied twelve days before death. In this case the artery had been completely severed. There was a clot above and below the point of separation, but it was not firmly adherent. The ligature had disappeared. In the third preparation the right subclavian had been tied with catgut thirteen days before death. The man had died of lung trouble. In this case there was a firm clot in the vessel for half an inch above, and for the same distance below the ligature. All the coats had been divided and afterwards repaired; the knot of the ligature was all that remained. In the fourth preparation the common femoral had been tied nineteen days before death. Death ensued from gangrene. All the coats of the artery had been divided and repaired, and good clots existed above and below the ligature, the knot of which, with perhaps some of its loop, remained. In all these cases the inner and middle coats of the vessels had been probably divided at the time of operation, as would be done by any permanent liga-

ture, the external coat afterwards by an ulcerative process, though in the first case this was partially accomplished in fourteen hours. He has operated in a number of other cases, and has reached the conclusion that the ligature at first divided the middle and inner coats, and then excited ulcerative action in the external coat. "If, therefore," said Mr. Bryant, "I cannot indorse what the distinguished introducer of the catgut ligature claimed for it in 1869," that by applying a ligature of animal tissue antiseptically upon an artery, whether tightly or gently, we virtually surround it with a ring of living tissue, and strengthen the vessel where we obstruct it, "yet I may express my belief that as the loop of the catgut ligature dissolves within an uncertain period, and there is not of necessity any sloughing or ulceration of the whole coat of the constricted artery, as must ensue where a more permanent material is employed, we have in the carbolized catgut the best ligature at our disposal." Mr. Maunder stated that in his personal experience the use of catgut in the continuity of vessels had been attended with success, but he knew that with others the case had been different. As to the matter of accidents following the catgut, he stated that it had frequently dissolved in twenty-four hours, and fatal hemorrhage had taken place. He was not in favor of this ligature in the continuity of vessels, and should no longer employ it. Mr. Barwell stated that he had employed the ligature in five cases, and no accident had resulted in any. It was advisable not to draw the ligature too tight, for the more tightly it was drawn, the more rapidly it was dissolved.—*The Medical Record.*

BLOODLESS OPERATIONS.*

By Prof. S. Esmarch.

Translated for the Journal by Edward Evers, M.D., of St. Louis.

I have always considered it an important duty of the surgeon to be as saving as possible with the "noblest juice" of the patient entrusted to his care; and ever since 1855 I have been in the habit, before every amputation, of applying linen bandages to the parts to be removed, so as to force out the blood circulating within them. I was led to do this by an amputation of the thigh, which I performed for a very large osteosarcoma. After the amputation I examined the detached leg, and was ashamed to find such a large quantity of blood pouring from its vessels. I mentally resolved to save that blood in the future. An operation recurred to me of which I had, a few years before, assisted my predecessor, Stromeyer. It was a case of ligation of

* Conclusion of Art. XII.

the brachial artery for aneurism, in which Stromeyer, in order to prevent the regurgitation of the blood from the capillaries, bandaged the arm from the fingers up to the aneurism before he applied the tourniquet above the tumor. At the time we discussed the interesting fact that the blood forced back from the capillaries into the arteries, possessed the color of venous blood, and we were surprised to find how easily the brachial artery was ligated after the blood that was still contained in the arm, had escaped through the incision.* It did not occur to either of us at the time, that the process was applicable to other operations as well; but now I acted upon this idea, and have done so ever since in all amputations and exarticulations in which it was important to save the patient as much blood as possible. I have exhibited the method to many surgeons, both at the close and during the various wars during which I officiated as consulting surgeon. In 1870–71, too, during which I was engaged at the Berlin military hospitals, I advised all surgeons, who consulted me, to bandage the limb before amputating. In this way, with the aid of a compressorium aortæ, I have even exarticulated the thigh with comparatively little loss of blood. But the whole proceeding was still imperfect, partly because I carried my bandages only to the seat of disease, or at most, to the line of amputation, but mainly because the artery was controlled solely by digital compression. In all cases in which the patient was very anæmic, and in which it was of the utmost importance that he should lose as little blood as possible, I endeavored to operate as quickly as possible. Thus I have repeatedly performed the one—formerly the circular amputation, the most rapid of all methods, in this way: "All the soft parts were divided down to bone by a single sweep of the knife, then the bone was quickly sawed through in a line with this incision, and the vessels were ligated.

After the hemorrhage was thus arrested, I dissected up the periosteum as far as necessary to remove several inches more of the bone. In an exarticulation of the thigh I endeavored to reduce the loss of blood to a minimum, in the following manner. The anterior flap having been formed first, the crural vessels were ligated *en bloc*, then the muscles were divided by circular incision, and the bone sawed through in line with the incision. Next the individual vessels were ligated, and finally the upper end of the bone was dissected out and exarticulated. In another case I immediately re-injected the blood lost during the operation into the femoral vein after having deprived it of its fibrin.

In desperate cases all these methods fail, and the loss of blood is always greater than the exhausted organism can bear. Our great object, therefore, was to find means of cutting off completely the circulation in the parts to be operated upon. Dief-

* Strosmeyer's Maximen der Kriegsheilkunde, 2 Auflage, p. 164.

fenbach recommended a process for extirpating nævi involving the thickness of the cheek, by which the circulation is arrested until it becomes necessary to insert the sutures. He made use of a forceps, the blade of which terminated in oral rings, between which the tumor to be removed was compressed. Desmanes and Snellen invented compressing forceps for the removal of tumors about the eyelids, which act in the same manner. They can be employed also in operations about the lips. In extirpating nævi, I myself make use of rings of horn or zinc, which are pressed down around the tumor by the assistant and generally cut off the supply of blood completely, particularly if there be any resistance as, for instance, about the cranial bones. I long since considered it a grateful task to seek a similar method for major operations.

The extensive use of caoutchouc in surgery, suggested the idea of utilizing its elasticity for our purpose. The results have more than realized our anticipations. After a few experiments had convinced us that the circulation could be completely interrupted by an ordinary rubber tube, our present method was rapidly developed.

A tube, such as we used to make counter-extension with in treating inflamed joints by extension, first served as a tourniquet; the rubber bandages used in treating dropsical effusions into the knee-joint, served as bandages for the limb. Every trial of the new method rendered its advantages more apparent. One improvement after the other was tested. The physical and physiological conditions were determined experimentally by one of your fellow-students,* and the more I became convinced of the advantages of this method, the more anxious I became to extend it to as many operations as possible.

Unfortunately its use is limited. We can completely control the circulation only in the extremities and in the external male organs of generation.

Possibly it may yet be extended to operations about the trunk, neck and head, by eliminating the circulation of one or all of the extremities, thus constituting them reserve depots, from which the general circulation could be replenished, in case the patient threatens to bleed to death. However, this is only an idea, the practicability of which is yet to be determined by careful experiments on animals and man.

Still I hope the new process may prove serviceable in many ways. In conclusion, I must touch upon a point of the utmost importance in favoring the general adoption of the new method. Does it produce any after results detrimental to the health of the patient? Certainly we cannot deny the possibility that long continued ligation of a limb may lead to dangerous impairment

* Dr. Iversen: De Kuenstliche Ischæmie bei Operationem. Diss. inaug. Kiel, 1873.

of the circulation and innervation, viz., thrombosis, inflammation, paralysis, etc., etc.

However, the manifold experience of surgeons of all times and countries in the use of the tourniquet and digital compression, renders it highly improbable that even a total arrest of the circulation can lead to evil consequences, provided it is not continued too long. The classic experiments of Cohnheim have proved that the complete arrest of the circulation in warm-blooded animals does not cause any permanent disturbance, provided it is not continued for more than six or eight hours at a time. Having performed more than eighty operations according to this method during the last year, I can assure you that I have not seen an untoward event in a single case that could be ascribed to the process. I have performed operations that lasted more than an hour, and have not found any disturbance of the circulation during the progress of the cases. On the contrary, the results of the operations have been unusually favorable, and accidental traumatic diseases were exceptional.*

One precaution I wish to impress upon your minds: When you are operating upon parts infiltrated with pus, you cannot render the parts perfectly bloodless. If you compress the soft parts in such cases, you run the risk of forcing the infectious matter into meshes of the cellular tissue above and into the lymphatics, and may thus do irreparable harm.

In such cases I do not apply the elastic bandages at all, but just before applying the compressing tube I elevate the extremity for a few moments.—*St. Louis Medical and Surgical Journal.*

REVIEWS AND BOOK NOTICES.

Practical Gynæcology. A Handbook of the Diseases of Women. By Heywood Smith, M.A., M.D., Oxon., Member of the Royal College of Physicians, Physician to the Hospital for Women, and to the British Lying-in Hospital. With illustrations. Pp. 200. Philadelphia: Lindsay & Blakiston. 1878. New Orleans: Crescent Book Subscription House, 112 Carondelet street.

This, the second volume of the "Students' Guide Series," is another attempt of an author to condense within two hundred

* In 329 operations performed from the beginning of the year to the end of the summer course (August 15), this method was used 87 times.

Of these 87 cases, 21 were amputations and exarticulations (6 amputations of the thigh, 8 of the leg, 1 exarticulation of the arm); 8 resections, 13 cases of necrotomy, 5 extirpations of tumors; the rest were minor operations, such as scooping out carious bones, scrofulous ulcers, opening abscesses, circumcision, etc.

Four of these 87 patients died. Most of the stumps after amputation united by first intention and without traumatic fever.

12mo. pages all that is necessary to be known by the busy practitioner or student. The plan of the work is excellent, and the illustrations desirable, but too little space is given to the consideration of most important subjects; and too much knowledge on the part of the student and busy practitioner is inferred. As an evidence of the remarkable powers of condensation of the author, we will only state that "Diseases of the Ovary," including ovariotomy, occupy thirteen 12mo. pages. We do say, however, that the author is very correct, and his hints of treatment are always valuable.

The book is issued by a house noted for the care exercised in publishing medical works, and is correctly printed and tastefully bound.

A Treatise on Gonorrhœa and Syphilis. By Silas Durkee, M.D., Consulting Surgeon of the Boston City Hospital; Fellow of Massachusetts Medical Society; Fellow of the American Academy of Arts and Sciences, etc. Sixth edition, with eight colored illustrations. Pp. 456. Philadelphia: Lindsay & Blakiston. 1878. New Orleans: Crescent Book Subscription House, 112 Carondelet street.

We fear that Dr. Durkee has presumed too much on the success of former editions of his work, and has not revised the present edition. It is evidently behind the times. But few pages have been re-written, and when referring to cases or observations of co-laborers, the observations bear the date of twenty years ago.

The first part of the work is devoted to the consideration of Gonorrhœa, its complications, and Spermatorrhœa, and is a complete manual of the subjects, embracing all that is known, and offering valuable suggestions in treatment.

The second part, devoted to Syphilis, is not so free from fault. In regard to the pathology of syphilis proper, he leaves out the results of modern research, and the expressive term *chancroid* is not to be found. He hardly touches on several remedies which have been found most efficacious in the treatment of mercurial sores. Carbolic acid in the treatment of phagadænic chancre or sloughing bubo is not alluded to, and iodoform is not even hinted at.

The illustrations are very fanciful indeed. In regard to color

they are not what they should be, and with the exception of the frontispiece, possess but little diagnostic value.

The publishers have presented the volume in creditable form; the type and paper are unexceptionable.

Puerperal Diseases. By Dr. Fordyce Barker.

This work arrived too late for review in the present number of the *Journal.* An extended criticism will appear in the May number.

MISCELLANEOUS.

COMMENCEMENT EXERCISES, MEDICAL DEPARTMENT OF UNIVERSITY OF LOUISIANA,

[The Commencement Exercises of the Medical Department of the University of Louisiana, furnished an occasion of unusual interest and gratification to the faculty and friends of the school. Everything seemed strikingly propitious. The day was absolutely glorious in its perfect serenity and delicious temperature. The hall was crowded to its fullest capacity. The addresses were altogether worthy of the day and the occasion. And each nascent doctor seemed to realize the solemn importance of an hour which constituted him a savings bank wherein human lives are the valuables deposited, and for the safe return of which he is to render the account of a faithful steward. We publish the Address of Prof. Elliott, and no reader is likely to regret the brief space afforded to such valuable food for thought and reflection. We have no room for further notice of these exercises, but ask leave to say that we publish the names of the alumni of the University since 1872, immediately following Prof. Elliott's lecture. This is done in deference to the wishes of many friends and alumni, old and recent. But in order to render the most scrupulous justice to those not so deeply interested in such a list, we make it entirely supplemental to the Journal.—EDITORS.]

Professor Elliott's Address.

Young gentlemen of the Graduating Class—It becomes my duty to welcome you into the profession of Medicine. In so far as the welcome is an earnest to you of successful labors, it gives

me the most sincere pleasure to extend it; while, as a signal for the breaking of ties that have been friendly though brief, the duty is not all pleasure.

With the welcome must also arise thoughts of the futures that await you, and my sincere sympathy goes with you in the arduous struggle to be endured ere those results will be attained, that to-day, in the flush of your first success, seem so near and so certain. To those results, years of patient labor and humble obscurity are the necessary stepping stones, and such among you are alone certified of success, who can carry into and through that patient labor the enthusiasm of his initial victory. Not so far removed from a day in my own life similar to this in yours, I feel that I may speak with especial emphasis concerning the essential duties of the lives before you; and to this end, I am assured that a few minutes may be well spent in attaining a clear idea of that feature of your education which is to bear most forcibly upon your future development and progress. For clear conceptions upon this point, let us remember at the outset that the mere accumulation of knowledge does not constitute education. Education is rather the acquiring of the ability to use the knowledge which may have been accumulated; and so it might happen that a perfect recollection of every technical fact you have reviewed may still leave you in a great measure uneducated physicians. Education is not an objective possession, but the development of a subjective power. It is not an extraneous entity which may be acquired from without, but a power which must be developed from within. Memory alone, with the most illimitable store of facts, can never enable you to meet successfully the infinite phases of disease. Behind the knowledge, the ability to think clearly and judge correctly is alone the power that can make it valuable and available.

This, as a fact taught by experience, is a truism; but it has, nevertheless, to be reiterated again and again, that in these days of rapidly accumulating knowledge we may not lose sight of the central point in the development of the mind. The great danger of our age lies in the fact that knowledge has so increased as to drive the individual to the study of specialties; and this, continued for the brief period allotted for education, compels a narnow field, and leaves the specialist too often incompetent to judge of questions beyond the sphere of his own investigations.

The great duty, then, that lies before you, is to form a clear

conception of the methods adopted for your instruction in your past course, and to perfect hereafter the work which you have here begun. Your instruction here has been two-fold: a certain amount of technical and elementary knowledge has been taught you as a necessary basis; but at the same it has been attempted to train you in that higher field wherein your own powers of thought—your reason and your judgment—should receive their proper development.

This latter factor in your education you will have to perfect for yourselves. Your whole lives must be one long effort to carry to its highest development this essential part of your mental training; and you may rest assured that by its completeness will be measured the limits of your future usefulness. The perfection of this development will depend upon the *mental habits* which may be formed in the next few years; and I force this question upon you to-day, because bad mental habits are more easily formed than bad physical habits, and in relation to your future usefulness will be quite as disastrous.

See to it, then, that you begin to train yourselves rigidly to good mental habits. Let your reading be chiefly as food for thought. Question carefully each fact brought before you, and so raise up in yourselves the power to criticise rather than to accept facts and opinions. If I seem to teach a medical scepticism, I can only reply, that scepticism guarded by thought and honest research is the safest path to truth.

The first fruit of such careful thought in your professional duties, will be a healthy mental independence; and this result you owe not only to your patients as physicians, but to yourselves as thinkers, and to your country as citizens. Independence of thought has always been a characteristic of the Southern mind—a characteristic fostered by the past independence of our lives; and while that phase of life which nurtured this mental boon has passed away, never should its teachings be forgotten. Never should we lose sight of the fact that the cessation of independent thought means the loss of the individuality of the person and of a people.

I do not wander from my subject in speaking of these general results of a good mental training. I desire in the broadest way to impress upon you the truth that independent thought is a necessary and essential part of your duty; and that careful, systematic thought upon the most common phenomena met with in

your professional lives, will ensure you an independence whose value can scarcely be measured. A clear and definite conclusion as to the causes of the phenomena of a disease, arrived at by a careful balancing of all the evidence available in any given case, is a fact of mental value far above its immediate results.

Should you in the next few years disregard this warning, you will assuredly find growing upon you habits of mental sloth and carelessness that will render study wearisome, and thought at first irksome and then impossible; and I say impossible, because there are but few men who are capable of long and patient thought, and these few have only acquired it by a life-long effort. The ordinary results of so-called thought are but little more than snap judgments, based upon an ill-digested experience; while the true power of thought lies in our ability to make it precede and shape our actions. He who guides himself by the first principle alone, must always be the creature of the past. He who moulds his actions by thought and reason, is the heir of the future. The one is the slave of that which has been done; the other is the apostle of that which there is left to do.

In no profession is original thought more urgently demanded than in medicine, for in no other profession is precedent so often erroneous. The results of the past are but as so many signals scattered here and there, as much for warning as for guidance, and any sure advance must be won beyond these through patient thought and research. Look forward, then, to the time when you may cease to be mental consumers, and studiously train yourselves to become mental producers. Let reason guide each act of your professional lives, and let *truth* be the single goal of every thought and effort.

I do not desire, by any word to-day, to lead you into a habit of theorizing without a proper knowledge of the subject theorized upon, nor to lead you to dabble superficially in every science that attracts you; but I would urge upon you the important fact, that you have in the most ordinary medical routine, *if properly used*, a mental training school that will lead to a mental habit and capacity by which your lives and your usefulness will be broadened a hundred-fold.

This great truth, that the practice of medicine is a great mental training school, is but little realized, and but carelessly used. The opportunities here claimed for mental training cannot be denied, nor can we fail to see the good to which they will

lead when conscientiously used. The mind that has produced the finest results of the century, Dr. Mayer, of Heilbron, who from his medical problems was led to the discovery of the Mechanical Equivalent of Heat, was a practising physician. Dr. Lionel Beale, whose discoveries with the microscope lie at the base of all modern histology, and whose splendid results form now the bulwarks against which modern materialism is destined to be broken, is also a physician. These I mention as bright examples of what has been done by our profession. Their results are fundamental truths, whose discovery must shape and modify human thought as long as our race exists. Innumerable others, making good use of the medical training school, are achieving results, minor, it is true, but results that when summed up, must throw the balance of truth discovered in favor of our profession. This is as it should be; for in the narrow limit of the human body with which we deal is involved the mystery of life, and the relations of spirit to Maker. Within that domain we are brought face to face with the fundamental problems of man's spirituality and immortality, and it behooves us, as worthy members of our profession, to be prepared to take our part in the decision of the struggle which from the fields of metaphysics is being transferred to our domain. With such problems before us, no additional incentive should be needed for thought and study; with such a training school as our daily practice, we have full opportunity to fit ourselves for the duty. The simplest case has its problem, or is itself a factor in a still larger problem. Every duty offers a stepping stone to truth; and as our business grows under the gradual accumulation of years, we will feel and know that out of insignificant issues we have gathered grand results, and out of a life of drudgery and anxiety have reaped a mental joy that those who never think can never know.

So far we have touched upon the relations of our work to ourselves, as physicians and as thinkers. I would be, however, but negligently performing my trust to-day, did I not point out to you the broader duties devolving upon us as moulders of opinions in those higher relations which bind us as christians.

It has too long been charged upon us as a profession, that our tendencies are toward materialism and atheism; that the very independence of thought which I have been urging upon you drives us into scepticism upon the most profound truths submitted to man's contemplation. The charge so put is in its

causes false. To assert that we must be sceptical because we are independent thinkers, is to assert that the great truths to which the human mind has bowed for eighteen centuries cannot stand the test of prejudiced reason; is to assert that fearless investigation leads inevitably to scepticism. That this is false, it is only necessary to analyse the philosophies of those who profess scepticism to discover. It is only necessary to consider the illogical conclusion that denies attributes to *The Cause* which numbers among its effects consciousness, intelligence, moral obligation.

It is true that the habits of independent thought which we are obliged to cultivate compel us to investigate and question. It is the necessary training of our lives, but where scepticism creeps in the fault lies not in the system but in the thinker. He, failing in the patient investigation which should precede his conclusions, the conclusions themselves must necessarily fail. Limiting his investigations to his own domain, and forgetting that from no single standpoint can truth be seen in its fulness, he yet undertakes to decide that fundamental truths are false because his measure cannot compass them. To such a doubter there is but one alternative. Either he should carry his investigations to such a point as may entitle him to an opinion, or the truths that have withstood the power of reason for so many centuries should be accepted.

The history of the past gives us a good measure of this power of reason, and affords us ample grounds from which also to deduce an argument for its powerlessness. From the period at which the philosophy of Greece had reached its highest development to the beginning of the Christian Era, we see human reason in its highest perfection combatting myths that to the Pagan worshipper were divine. Slowly, century by century, those beliefs were undermined, until at the opening of the present era we find a world without a faith. The crude inventions of a barbaric age could not stand the power of reason, and faith in aught but human ceased. In the picture presented by that ancient mind at this period, there is a pathos almost sublime; and the altitude of that mind bears innate evidence to a germ of faith beyond reason to eradicate. Without a hope beyond this life; without a reward beyond the commendation of their own consciences, they yet rose superior to human passions, and testified in their lives to the truths of an unrevealed faith.

At the beginning of the Christian Era, reason again found a field for the test of its powers. The same reason was arrayed against a later faith, and for eighteen centuries has not ceased to battle against its precepts. The issue of the contest has not yet arrived, and we hear around us to-day the increasing clamor of its strife.

On this great question, if at all in doubt, it behooves each one of you to see that your opinions are formed after careful thought and investigation.

To form opinions from mere impressions is not admissible in a question of so fundamental a character; and to leap to false conclusions because our impressions may seem to coincide with the opinions of prominent thinkers, is to ally ourselves in a mortal contest with opinions whose value we have not tested.

If I seem to dwell unduly upon our duty as thinkers in relation to these graver questions, believe me, that it is only from a strong conviction of the important position which we hold as moulders and supporters of opinion, and from a still firmer belief in the fact that days are rapidly coming upon us as a people when every strong and right opinion upon these subjects will be a strengthening of the hands of law and order, and an upholding of the moral force and character of the nation. What the future may contain for us as a people we can but dimly foresee; yet we may receive as a foregone conclusion, that our only hope will lie in correct opinions upon these weighty topics.

In conclusion, let me again impress upon you the high mental advantages which your chosen pathway in life opens before you; and let me charge you, as your highest duty, to so train yourselves mentally as to become worthy members of the noble profession into which I have this day the honor to welcome you.

Names of Graduates.

	Residence.	Grad.
Armstrong, William H	Louisiana,	1872.
Ader, Edward	"	1873.
Allen, William G	Mississippi,	"
Archer, William B	Louisiana,	1874.
Applewhite, S. W	Texas,	1875.
Ayres, William C	Louisiana,	1876.
Armstrong, Thomas A	"	1877.
Bell, John, jr	Mississippi,	1872.
Bonn, J. Farry	Texas,	"

	Residence.	Grad.
Barroso, Francisco	Louisiana,	1872.
Butler, Napoleon B	Texas,	"
Bailey, Walter	Louisiana,	1874.
Baker, Wm. M	"	"
Barker, Wm. L	Texas,	"
Batchelor, Albert A	Louisiana,	"
Borders, John M	Texas,	"
Brown, John H	Alabama,	"
Buffington, Alexander D	Louisiana,	"
Butler, Samuel L	Texas	"
Ball, Charles W	Louisiana,	1875.
Barkley, Wm. R	Texas,	"
Bayley, Robert A	Louisiana	"
Benton, J. M	Mississippi,	"
Blundell, G. P	"	"
Bostick, J. W	Texas,	"
Brooks, F. M	Louisiana,	"
Bankhead, George G	Mississippi,	1876.
Bernard, Frederick R	Louisiana,	"
Blailock, William R	Mississippi,	"
Brooks, Robert F	Louisiana,	"
Barnes, William W	"	1877.
Boston, Arnet P	Texas,	"
Black, John A	"	1878.
Bragg, John M	Arkansas,	"
Bienvenue, Delphine	Louisiana,	"
Barry, Edgar S	"	"
Bairnsfather, Hartwell M	"	"
Bowman, M. Luther	"	"
Bemiss, John H	"	"
Compton, James M	"	1872.
Clarke, Alexander W	"	"
Clopton, Wm. F	"	"
Chambers, John F	"	"
Coreham, Thomas E	Texas,	1873.
Cook, Conrad E	Alabama,	"
Cratin, Sylvester	Mississippi,	"
Crawford, Robert A	Texas,	"
Crum, Floyd A	Alabama,	"
Czarnowski, Oscar	Louisiana,	"

	Residence.	Grad.
Calhoun, W. S. N.	Louisiana,	1873.
Collins, Romanty M.	Louisiana,	1874.
Carson, W. H	"	1875.
Caldwell, Robert C.	Kentucky,	1876.
Carter, Thaddeus A.	Louisiana,	"
Cecil, Matthew A.	Virginia,	"
Champion, Nicholas.	Texas,	1877.
Clifford, Gustavo	"	"
Coleman, John H.	"	"
Cunningham, William M.	"	1878.
Caulfield, Geo. W.	Mississippi,	"
Carter, James T.	Texas,	"
Durr, Lafayette G.	Mississippi,	1872.
Delaroderie, Timolean	Louisiana,	"
De Villeneuve, Arthur B.	"	"
Day, Elisha L.	Texas,	"
Daniel, Chesley	"	"
Daniel, J. W.	"	1873.
Dodds, Aaron M.	Mississippi,	"
Dulaney, John W.	"	"
Dickson, George L.	"	1874.
Duke, Wm. J.	Texas,	"
Dean, R. H.	Mississippi,	1875.
Ducotè, C. J.	Louisiana,	"
De Roaldes, Fernand	"	1876.
Deslattes, Jean L.	"	"
Dreifus, Emanuel	"	"
Darnell, Jere C.	Arkansas,	1877.
Deason, Jeremiah	Texas,	"
Douglas, John W	"	"
Dulaney, Wm. P.	Mississippi,	"
Davis, Joseph L	"	1878.
DuPuy, Albert G.	Texas,	"
Elliott, Alfred W.	"	1874.
d'Estrampes, L.	Cuba,	1875.
Everett, John V.	Texas,	1876.
Elmore, James P.	Louisiana,	1877.
Fleetwood, John H.	"	1872.
Ferrell, Alexander B.	Mississippi,	1873.
Fisher, Frederick K.	Texas,	"

	Residence.	Grad.
Fly, John M	Texas,	1874.
Fears, John B	"	1875.
Fields, J. A	Texas,	1875.
Faget, Charles	Louisiana,	1876.
Fairley, Alexander	Mississippi,	"
Ferrell, Warren	"	"
Forchhammer, Otto	Louisiana,	"
Freund, Maurice	"	1878.
Gibson, Fontaine L	Mississippi,	1872.
Gilbert, Jerre	"	"
Galloway, Wm. H	"	"
Given, James G	Louisiana,	"
Gallagher, Charles	"	"
Grant, Everard M	Mississippi,	"
Gilbeau, Felix	Louisiana,	"
Gregg, Richard S	Mississippi,	1873.
Grun, James H	"	"
Galloway, Allen H	Texas,	1874.
Guyol, Leonce P	Louisiana,	"
Gallier, Z. T	"	1875.
Goodrich, William	Texas,	"
Grace, J. E	"	"
Gardner, James E	Virginia,	1876.
Grizzard, Luther A	Texas,	"
Grube, Otto R	Louisiana,	"
Gayden, Agrippa	"	1877.
Gill, Simon G	"	1878.
Griffin, Louis M	"	"
Grosart, Maximillian F	"	"
Griffin, Joseph H	"	"
Hilliard, Henry I	Texas,	1872.
Herne, Albert	"	"
Hunter, John D	Louisiana,	1873.
Hamilton, J. M	"	1874.
Hamilton, Samuel D	S. Carolina,	"
Hays, Geo. A. B	Louisiana,	"
Hendricks, James G	Texas,	"
Hooker, Wm R	Mississippi,	"
Howell, John L	Texas,	"
Hurt, Wm. H	"	"

	Residence.	Grad.
Henderson, J. W	Texas,	1875.
Hawkins, Charles C	Louisiana,	1876.
Hudson, Charles S	Mississippi,	"
Hayden, Geo. W	Louisiana,	1877.
Heath, James P	"	"
Hayes, James P	"	1878.
Hicks, Dulano P	"	"
Holloway, Joseph A	"	"
Harry, John J	Mississippi,	"
Hill, Homer B	Texas,	"
Hayden, Manuel M	Louisiana,	"
Harang, Wm. F	"	"
Isbell, James M	Texas,	1872.
Inabnit, John A	Texas,	1874.
Jamison, Mardis L	Arkansas,	1872.
Jones, Lafayette P	Texas,	"
Jones, John A	Illinois,	1873.
Johnson, Wm. J	Louisiana,	1874.
Jones, Charles H	Mississippi,	1876.
Jackson, David A	Arkansas,	1877.
Janin, Jules	Louisiana,	1878.
Jones, Phillip H	"	"
Johns, Percy W	Texas,	"
Kemp, Joseph	Louisiana,	1872.
Kerr, Geo. W	Texas,	1873.
King, Wm. A	"	"
Knoblauch, Charles F	Louisiana,	1874.
King, J. B	Texas,	1875.
Kiger, Wm. G	Mississippi,	1876.
Kennedy, Robert W	Louisiana,	1877.
Kibbe, Wm. G	Louisiana,	1878.
Lockett, Wm. A	Alabama,	1872.
Leary, M. Francis	Louisiana,	1873.
Ligon, Edwin T	Texas,	"
Lopez, Charles J	Cuba,	"
Lane, Andrew J	Texas,	1874.
Leroux, Charles L	Mississippi,	"
Lewis, Thomas J	"	"
Langworthy, J. S	Louisiana,	1875.
Landrum, Casimir A	Florida,	1876.

	Residence.	Grad.
Larcade, Joseph A	Louisiana,	"
Levy, Marx	"	1876.
Longarre, Tobie T	"	"
Licht, Frederick S	"	1877.
Lovelace, Embry P	Georgia,	1877.
Langebecker, Charles O	Louisiana,	1878.
Miles, Elbert M	Texas,	1872.
Munday, John C	Louisiana,	"
Miller, Henry L	Texas,	"
Matthews, George W	"	"
Magruder, John T	Mississippi,	"
McKnight, John	Texas,	"
McFarland, Benjamin F	Tennessee,	"
McLemore, Robert S	Mississippi,	"
Matthews, James A	Texas,	1873.
Martin, Frank R	Mississippi,	"
Melchert, Charles	Louisiana,	"
Mims, Wm. D	Mississippi,	"
McLenden, John	Texas,	"
McMurtry, Louis S	Kentucky,	"
Martin, William	Louisiana,	1874.
Macon, Dorsey	Texas,	"
Mayfield, John C	"	"
McGehee, Edward L	Mississippi,	"
Meyer, Joseph	Kentucky,	"
Morton, Wm. L	Alabama,	"
Morgan, Francis E	Arkansas,	"
Myles, Robert C	Mississippi,	"
McClanahan, J. D	Texas,	1875.
Miles, A. B	Arkansas,	"
Moss, John R	Louisiana,	"
Murray, Wm. M	Mississippi,	"
Magruder, James W	"	1876.
Moore, James O	Texas,	"
Muir, Joseph W	Kentucky,	"
Megee, John T	Mississippi,	1877.
Minville, George P	Louisiana,	"
Mioton, Eugene J	"	"
Metcalfe, Henry L	"	1878.

	Residence.	Grad.
Martin, Walter McD	Mississippi,	1878.
Martin, Charles N	Arkansas,	1878
Mercier, Charles S	Louisiana,	"
McBride, John A	Mississippi,	"
Norman, Charles M	Louisiana,	1873.
Nelson, Thomas G	Alabama,	1875.
Norman, Wm. S	Arkansas,	1875.
Null, Napoleon B	Louisiana,	1877.
Oates, Conrad D	Alabama,	1872.
Owen, Charles M	Texas,	"
O'Hara, James H	Alabama,	1874.
Oliphant, Samuel R	"	1878.
Patton, Cicero B	Texas,	1872.
Patrick, Robert	Mississippi,	1873.
Phillips, W. Crawford	Alabama,	"
Prowell, John J	Mississippi,	"
Pratt, George K	Louisiana,	1874.
Pugh, Jesse P	Alabama,	"
Paine, Charles F	"	1875.
Powell, Thomas E	Texas,	"
Posey, John L	Louisiana,	1877.
Prejean, Ursin	"	1877.
Parra, Henry A	"	1878.
Priestley, Charles L	Mississippi,	"
Rand, Edward P	Alabama,	1872.
Renfro, James C. B	Texas,	"
Rice, Saul Peter	Louisiana,	"
Rivera, Thomas C	"	1873.
Ross, D. C	Texas,	"
Rowan, James A	Mississippi,	"
Rumph, James D	Alabama,	"
Richardson, Clark	Texas,	1875.
Rucker, James R	"	"
Ryan, William	Louisiana,	"
Robbins, Samuel D	Mississippi,	1876.
Rabb, Edward M	Texas,	1878.
Ross, James S	Arkansas,	"
Stennis, Samuel D	Mississippi,	1872.
Sholars, Samuel W	Texas,	"

	Residence.	Grad.
Sartor, Daniel R.	Mississippi,	1872.
Shamblin, John A.	Texas,	"
Shepard, Frank A.	Texas,	1872.
Salomon, Lucien F.	Louisiana,	"
Sadler, John M.	Arkansas,	1873.
Shivers, Offo L.	Alabama,	"
Smart, Samuel J.	Louisiana,	"
Sutherland, Hugh L.	Mississippi,	"
Scarborough, Othello.	Mississippi,	1874.
Scranton, George W.	Louisiana,	"
Simmons, Willis F.	Mississippi,	"
Smith, Bat.	Alabama,	"
Sandrez, Pedro.	Cuba,	1875.
Scott, Wm. P.	Mississippi,	"
Sellers, James M.	Texas,	"
Scott, Wm. W.	Mississippi,	1876.
Sexton, Frank M.	"	"
Shurley, John A.	Texas,	"
Sloan, Alexander D.	Louisiana,	"
Smith, James K. P.	Texas,	"
Squyres, Wm. H.	Louisiana,	1877.
Steinau, Henry.	"	"
Sykes, Wm. S.	Mississippi,	"
Szabary, Latzi.	Louisiana,	"
Stewart, John B.	"	1878.
Sigur, Narciso L.	"	"
Salmon, John B.	Texas,	"
Sizemore, Preston P.	Louisiana,	"
Salmon, Edwin R.	Texas,	"
Stewart, James A.	Arkansas,	"
Stovall, Walton R.	Mississippi,	"
Thompson, Wm. M.	Louisiana,	1872.
Trayler, Henry W.	"	"
Thornhill, F. M.	"	"
Talbert, John D.	Mississippi,	"
Terrell, James C.	"	1873.
Tucker, Robert S.	"	1877.
Thompson, Patrick H.	Georgia,	1878.
Thompson, Cyrus.	N. Carolina,	"

	Residence.	Grad.
Tircuit, Adolph	Louisiana,	1878.
Tircuit, Felix	"	"
Tebo, Langdon C	"	"
Vines, George W	Alabama,	1872.
Vittum, W. H	Wisconsin,	1875.
Vaughan, Z. Edmunds	Louisiana,	1876.
Veazie, Henry A	"	"
Villaverde, Aurelio G	Cuba,	1878.
Watkins, Wm. B	Alabama,	1872.
White, Robert L	Louisiana,	"
Williams, Otis L	Texas.	1872.
Watkins, Wm. Whitfield	Mississippi,	"
Wagley, Thomas J	Louisiana,	1873.
Watkins, Wm. A	Texas,	"
White, Wm	Tennessee,	"
White, Wm. H	Mississippi,	"
Whitney, Penn D	"	"
Williams, Jeff D	"	1874.
Wilkinson, Clem. P	Louisiana,	"
Watkins, John M	"	1875.
Wilcox, Charles K	"	"
Williams, N. W	Mississippi,	"
Williams, Thomas E	"	"
Warren, Daniel C	"	1876.
Watson, Joseph H	"	"
Williamson, John W	Texas,	"
Wisenger, John A	Alabama,	"
Wise, George A	Louisiana,	"
Whitworth, Wm. T	"	1877.
Walton, Early W	Texas,	1878.
Woolf, Thomas J	Louisiana,	"
Young, Zachariah T	"	"
Young, Charles H	"	1874.
Young, Thomas R	Mississippi,	"
Youngkin, John A	Texas,	1876.
Young, Isaac T	Louisiana,	1878.

Graduates in Pharmacy.

Melchert, Charles	Louisiana,	1872.
Stumpf, George	"	"

	Residence.	Grad.
Brooks, P. Drury	Louisiana,	1873.
Forchhammer, Otto	"	"
Lewis, Ben	"	"
Stumpf, Henry	"	"
Wise, Isaac	"	"
Blanchard, P. Leo	"	1874.
Finlay, Alex. K	"	"
Griffo, Ant	"	"
Grosart, Max. F	"	"
Grube, Otto	"	"
Majean, Marcel	"	"
Mattingly, George J	"	"
Poncey, Fred. M	"	"
Ryan, Wm	"	"
Sauter, Emile	Louisiana,	1874.
Wunderlich, Emile	"	"
Denninger, L	"	1875.
Paulsen, H	"	"
Clausen, John	Texas,	1876.
Greff, Henry	Louisiana,	"
Hart, George H. J	"	"
Jones, Edward W	"	"
Stumpf, John	"	"
Theard, Louis R	"	"
Gohren, Oscar Von	Louisiana,	1877.
Lavigno, John B	"	"
McCutchen, Percival B	"	"
Shafer, Joseph	"	"
Turpin, Henry E	"	"
Barth, Pierre	"	1878.
Carnuché, Ignacio	"	"
Greve, Frederick O	"	"
Mailher, John A	"	"
Mattingly, Arthur R	"	"
Metz, Louis S	"	"
Otto, John N. W	"	"
Salmon, Edwin R	Texas,	"
Stumpf, Edwin	Louisiana,	"
Tebo, Langden C	"	"

EDITORIAL.

Laws Affecting Medical Men.

How long will it be before something of stability and general authority shall characterize legal decisions touching medical men? Our brethren, (or, antitheta) of the legal persuasion differ as widely in respect to their interpretations of law, as do doctors in respect to gross appearances of urine, or the different aspects of the tongue, as diagnostics of disease. Who shall decently compose and reduce to argument the extraordinary discrepancies set forth in the following extracts?

On the 16th day of November, 1877, Dr. Thomas J. Dills, a practising physician of Fort Wayne, Indiana, was summoned by subpœna to testify as an expert in the case of the State against Robert Hamilton for Rape. After answering the usual questions as to qualifications, he was asked the following by counsel for the defense: "State whether or not, in cases of female menstruation and towards the end of the period, there is sometimes a retention of a portion of the menses." This the witness refused to answer, upon the ground that it called for his professional opinion as a matter of right and without compensation. He thereupon filed his objections and appealed to the court in behalf of the justice and equity of his claim. After due deliberation, Judge Borden ruled against the petition, and on further refusal he adjudged the witness in contempt and ordered his commitment to the county jail as a punishment therefor. A writ of *habeas corpus* was sued out before Judge Lowry, who, after a long and patient research in English common law, statutory enactments, etc., decided against the suit and remanded the witness to the custody of the sheriff. After this decision the witness returned to the stand, purged himself of contempt, but offered his testimony under protest, thus reserving all his individual and professional rights before the law.

The case was in many respects a novel one, and, as we shall see by reference to the opinion of his Honor, Judge Lowry, was the occasion of some curious exceptions. The question to be decided by Judge Lowry was, as stated in his own words, briefly this:

"Has a person called as an expert—in this case a physician—having in all other respects as to attendance as a witness, at the instance of the defendant, and answering all preliminary questions in a trial in the criminal court for felony, when called upon for his opinion upon a question of skill pertaining to his profession, a right to refuse to answer until provision is made for his

compensation, either by the defendant or the court; or is he in such case guilty of contempt and subject to imprisonment?"

In regard to the matter of special compensation, it is contended by his Honor that no provision therefor has been made in common law, and that even in criminal prosecutions there has been no distinction between witnesses testifying as to facts and those called as to questions of skill. So far, then, as the common law is concerned, the question would seem on general principles to be settled.

Examining into the subject still further, his Honor bolsters up his argument against extra compensation by a reference to statutory enactment. There is a constitutional provision in the laws of Indiana providing that

"No man's particular services shall be demanded without just compensation. No man's property shall be taken by law without just compensation; nor, except in case of the state, without such compensation first assessed and tendered."—(The Bill of Rights, Art. 1, Sec. 21, Const. Ind.)

While the fact of the existence of this law is of course admitted, its applicability is denied; that is to say, it is claimed that a man's opinion is not his special and individual property, and is therefore not comprehended in the term "particular services."

The manner in which this proposition is attempted to be proved by the judge is so ingenious, and carries with it so much of the air of subtlety, that we make from his charge the following quotation in point:

"When a witness is required simply to testify in a court of justice, it cannot be said in the sense of this provision that his property is to be taken. He is not to be deprived or divested of anything. If he have an opinion on the question in hand, it is not proposed to dislodge it or dispossess him of it and transfer it to the enjoyment and dominion of some one else. It is proposed simply that he shall give it expression. To do this it is necessary to set in motion the organs of speech. By their use he lays before the jury a statement of the laws appertaining to some department of nature, science, art, life or business not within the common and general observation and knowledge of mankind. This knowledge he has at some previous time acquired through the use of his senses, by the impressions made upon them from without, and by classifying, arranging, and comparing those impressions he has formed conclusions or opinions. He is now required to state what those opinions are; or it may be he is simply to state what the views of others of acknowledged authority are as received and acknowledged by his profession, as he may have got those views from books or heard them from the platform. This is obviously, in either case, a 'service' that he is required to render. It is not even some

original combination of forces, or some new and grand invention of his own, that he is required to divulge. It is not an hereditament, corporeal or incorporeal—nor an easement connected therewith—nor a corporeal or incorporeal chattel."

Another reason for considering the services in the case in question of no pecuniary value is that they were to be rendered in a criminal case. (Israel *vs.* State, 8 Ind.) On this point the Judge remarks:

"We do not propose to go into a discussion with a view to a definition of 'particular services;' but we are prepared to say that the services of witnesses in criminal cases are not particular, but are of the class of general services which every man in the community is bound to render for the general as well as his own individual good. It is as much the duty and interest of every citizen to aid in prosecuting crime as it is to aid in subduing any domestic or foreign enemy; and it is equally the interest and duty of every citizen to aid in furnishing to all, high and low, rich and poor, every facility for a fair and impartial trial, when accused, for none is exempt from liability to accusation and trial."—*New York Medical Record.*

It will be seen from the following extract from a late western newspaper, that the Supreme Court of Indiana sustained the physicians in their demand for compensation for professional opinions.

The Supreme Court of Indiana rendered a decision last month (February) of immeasurable importance, not only to the medical profession, where the suit originated, but to the members of the other professions and callings. It was a test case, and is the first decision ever rendered on the subject by any court in this country, and, as far as we know, in any other country, and will be hailed all over the land as just and right. The two dissenting judges may, in the near future, regret that they did not make it unanimous. The particulars of the suit were noticed in the *Advocate* at the time, and are briefly these: Drs. T. J. Dills and A. B. Buchman, of Fort Wayne, Indiana, practising physicians of reputation, were summoned by the defendant to give testimony, as experts, in a case of rape, State vs. Hamilton. They had no concern or interest in the case or man, and they refused to give the evidence unless they were properly compensated. The judge promptly ordered them to jail, and after they had exhausted every means to sustain the stand they had taken, they were forced to succumb and give the testimony, which they did under protest, and then they brought suit against the State. A decision was given in the lower court adverse to Drs. Dill and Buchman, but the Supreme Court of the State reversed the decision of the lower court, and sustained the position taken by

these physicians. The court "held that under the constitution, the State has no right to take a man's particular services without compensation, and that the giving of expert medical testimony is a particular service within the meaning of the constitution." As said above, this decision is of the highest importance, and will give entire satisfaction everywhere—affecting, as it does, every profession and calling. Too much praise cannot be accorded Drs. Dills and Buchman for their brave and manly stand in the interest of right and justice, and their profession will hold them in everlasting gratitude for the great service they have rendered it.—*Kentucky Advocate.*

On the other side of this question, a recent medical exchange states that a late decision of the Supreme Court of Alabama rules that all expert witnesses, medical included, are under the law, compelled to give testimony without other compensation than is allowed to ordinary witnesses.

Leprosy and Nitrate Silver.

In 1877, Prof. Richardson, of this city, spent his summer vacation in the Sandwich Islands. While there he became interested in the study of Leprosy, and suggested to Dr. Enders, the physician in charge of the cases, to try the effects of nitrate silver. It was argued that if the disease should be considered constitutional, and dependent upon a pathology principally relating to the trophic nerves, that nitrate silver had long been recognized as an agent having powerful influence over nerve disorder. On the other hand, if it be a purely local cutaneous affection, nitrate silver has a positive tendency to elimination into, or through the cutaneous structures; consequently, under either theory, lunar caustic has claims as a therapeutic agent.

Dr. Enders writes that his trials are thus far so encouraging, as to justify strong expectations of good results.

Further reports will be made as they are communicated to us.

Dr. H. D. Schmidt's Contributions.

The conclusion of Dr. Schmidt's paper, on lesions of the cortical portions of the brain, will appear in our May number.

METEOROLOGICAL AND MORTALITY REPORTS.

Meteorological Report for New Orleans—February.

Day of Month.	Temperature.			Mean Barometer Daily.	Relative Humidity—Daily.	Rain fall—inches
	Maximum.	Minimum.	Range.			
1	70	44	26	29 932	70.3	.00
2	56	49	7	30.150	60.	.00
3	56	40	11	30.240	53.	.00
4	49	41	8	30.199	55.3	.00
5	55	37	18	30.167	59.	.00
6	59	41	18	29.849	82.3	1.59
7	60	49	11	29.615	75.	.49
8	68	45	23	29.663	76.	.00
9	62	49	13	29.721	59.7	.04
10	50	42	8	30.029	61.0	.00
11	49	37	12	30.243	48.7	.00
12	53	38	13	30.038	75.0	.17
13	68	50	18	29.697	83.7	1.15
14	69	53	16	29.780	58.7	.00
15	64	54	10	29.974	69.	.06
16	65	49	16	30.131	71.	.00
17	69	52	17	30.074	77.7	.00
18	71	56	15	30.123	73.7	.00
19	69	57	12	29.986	75.7	.00
20	72	61	11	29.557	82.7	.00
21	70	61	9	29.583	60.	.00
22	69	55	14	29.835	57 3	.00
23	67	56	11	29.917	53.	.00
24	62	51	11	30.151	51.3	.00
25	63	47	16	30.259	48.3	.00
26	58	50	8	30.116	49.7	.00
27	61	49	14	30.086	48.0	.00
28	66	48	18	30.075	61.	.00
Mean..	62.5	48.8	13.7	29.971	64.2	Total. 3.50

Mortality in New Orleans from February 25th, 1878, to March 24th, 1878, inclusive.

Week Ending	Yellow Fever.	Malarial Fevers.	Consumption.	Small-Pox.	Pneumonia.	Total Mortality.
March 3.....	0	3	17	11	13	107
March 10.....	0	2	15	7	6	96
March 17.....	0	5	9	11	20	116
March 24.....	0	3	19	13	13	110
Totals.....	0	13	60	42	52	429

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THE

NEW ORLEANS

MEDICAL AND SURGICAL JOURNAL.

MAY, 1878.

ORIGINAL COMMUNICATIONS.

IS THERE SUCH A DISEASE AS MORAL INSANITY, DISTINCT FROM INTELLECTUAL DERANGEMENT?

(A Paper read at the Regular Meeting of the Chicago Academy of Sciences.)

BY N. S. DAVIS, A.M., M.D., CHICAGO, ILL.

The subject to which I invite your attention this evening, is one of much interest, both in its relations to mental Science and criminal jurisprudence. The tendency, on the part of many writers and thinkers, to multiply the mental faculties, with a corresponding multiplication of the physical organs or nerve cells for their special manifestation, leads directly to a corresponding increase in the number of alleged distinct forms of insanity. And the steadily increasing frequency of the plea of insanity in defense of those charged with the commission of crimes, renders it highly important to the interests of society that all phases of the subject concerning which there are differences of opinion, should be examined with the greatest care. No small part of the difficulty attending the discussion of every and all forms of mental unsoundness, arises from the want of precision and uniformity in the use of language. Thus one class of psychologists, or mental philosophers, endeavor to trace all mental operations to a few primary powers called *faculties*, such as ideation or perception, intellection or reason, and volition or

will; another applies the same word, *faculty*, to almost every perception, emotion, or mental process of which the mind is capable. Writers of the latter class are constantly using the expressions, perceptive faculties; affective faculties; emotional faculties; reflective faculties; moral faculties; faculties of volition, conscience, size, weight, color, calculation, form, sight, hearing, etc. And as nothing is more clearly demonstrated in science, than that the mind manifests itself through material organs composed of nerve matter, it is both easy and logical for the latter class to infer that a special material organ exists for each of these many faculties of the mind. As all material organs are subject to disease disturbing more or less the manifestations of their function, it follows that we may have as many forms of mental derangement as there are faculties and organs assigned for the manifestation of mind. But it is no part of my purpose this evening to enter upon a general discussion of mental philosophy, or even attempt a criticism of the vague use of words pertaining to it; but simply to raise the question whether there is such a disease as "moral insanity," without intellectual failure, and present some of the leading facts and arguments that may aid us in arriving at a correct answer. We are told that *moral insanity* is a morbid or diseased condition of the moral sense or faculty—that faculty by which the individual becomes conscious of right and wrong. Those who advocate the existence of such a form of mental disease, assume as a basis of all their reasoning, that there is in man a distinct faculty called by different authors the "moral sense," the "moral instinct," the "moral faculty," as distinct from the intellect or reason. They are not agreed, however, as to the origin or relation of this faculty with the other faculties of the mind. Some make it identical with conscience, and locate it with the understanding or intellect. Others class it with volition or will; while still others regard it as a primary faculty, having its distinct portion of nerve matter for its manifestation as much as any of the senses. Dr. Benjamin Rush, who was one of the earliest writers to recognize the existence of a diseased condition of the moral faculty, in a paper read to the American Philosophical Society in Philadelphia, February 27th, 1786, says: "By the moral faculty, I mean a capacity in the human mind of distinguishing and choosing good and evil, or in other words, virtue and vice. It is a *native principle*, and though it be capable of improvement by experience and reflec-

tion, it is not derived from either of them." Again he says: "The moral faculty is what the schoolmen call the *'regula regulans;'* the conscience is their *'regula regulata;'* or, to speak in more modern terms, the moral faculty performs the office of a law-giver, while the business of conscience is to perform the duty of a judge. The moral faculty is to the conscience what taste is to the judgment, and sensation to perception." Although in one of the quotations just made, Dr. Rush declares the moral faculty to be "a native principle," not derived from either "experience or reflection," yet in another place he represents it as a quality or power of the will. He says: "It has long been a question among metaphysicians, whether the conscience be seated in the will or in the understanding. The controversy can only be settled by admitting the will to be the seat of the moral faculty, and the understanding to be the seat of the conscience." The essay or paper from which I have quoted is entitled, "An Inquiry into the Influence of Physical Causes upon the Moral Faculty;" and that the distinguished author at that early period clearly recognized moral insanity, or at least morbid conditions of the moral faculty, is evident from the following paragraph. After claiming that the nosological arrangements of mental disease then prevalent were defective, he says: "I shall begin with an attempt to supply the defects of nosological writers, by naming the partial or weakened action of the moral faculty, *Micronomia.* The total absence of this faculty, I shall call *Anomia.*" Having thus alluded to the early recognition of a moral sense or faculty, and its capability of becoming defective or diseased, I will pass directly to the most modern teachings on the same side of the question before us.

These we find most clearly and compactly stated in a very interesting paper, primarily read to the Evanston Philosophical Society, and subsequently published in the *Journal of Nervous and Mental Diseases,* for October, 1877, by H. M. Bannister, M.D., of Chicago, one of the editors of that valuable periodical. The positions of this writer are briefly stated in his own language, as follows:

"I. The brain is the instrument of the mind, the immaterial part of our nature, through which it receives impressions from and reacts upon its surroundings.

"II. Its functions may be classified as receptive and dynamic, the former comprising feeling (including sensation), and the

latter intellection, volition, and the control of our other bodily organs.

"III. The simplest product of intellection, is an idea or judgment based upon premises found in our feelings. These being thus antecedent in the order of development to intellection, must necessarily be independent of it.

"IV. Among our feelings we find the *moral sense*, which, whether it is considered as a direct endowment from the Creator, or as existing in the species as a derivative from still other feelings, must nevertheless be admitted to be primary as far as the individual is concerned.

"V. Like all the other senses or feelings, this moral sense must have its special mechanism in the brain for the reception of moral impressions. (For various reasons, it appears that this apparatus is localized in some particular part of the brain. This, however, is not, in its stricter sense, an essential point: all that is requisite is, that it have its special ganglion cells and connections.)

"VI. This mechanism, like every other portion of the brain, is liable to be disordered, thus producing disorder of its functions. That this may occur without implication of the organs concerned in intellection, is probable from the following reasons:

"*a.* From analogy, since we know that other special faculties or senses may be separately affected.

"*b.* Because the reception of moral impressions is the highest and best capacity of the human mind, the functions of its cerebral organ are consequently the highest and most delicate in the whole economy, and are not developed, at least to any extent, in any of the lower animals, which nevertheless give very decided indications of intellectual development. It is natural, therefore, to think that our brain mechanism may fail in this its most delicate work, while still meeting all lower demands.

"*c.* The facts of dreaming, somnambulism and trance, directly indicate that the moral sense may be suppressed, or weakened, without affecting the other mental faculties, or, at least, without directly embarrassing the intellectual powers, in so far as they are exercised.

"VII. In the peculiar phase of mental disorder known as impulsive insanity, the disease consists in an increased excitability with diminished volitional control, increasing the force of certain

morbid impulses to which even sane men are liable, and diminishing the power of the patient to resist them. In persons of naturally weak will-power, though not deficient in intellect, the condition of at least partial irresponsibility, may be said to always exist. In this impulsive insanity, the moral sense may be acute, and the patients may strive to the utmost and yet be unable to resist the impulse."

Again he says: "The *moral sense*, or whatever gives us the subjective basis for moral perceptions and judgments, belongs to a class of faculties that are to the mind what sensations are to the physical organism; they are the incitants of the mind's activities—the intellect is dependent upon them, but the relation is not a mutual one."

The author of the above propositions very justly remarks, that "in order to demonstrate the possibility of disease affecting the moral faculty alone, it is needful first to prove that the faculty exists, and that it exists separate from those of the intellect."

After looking through his paper carefully, as well as that of Dr. Rush, and others, I must acknowledge that the proofs adduced in favor of the existence of such separate *faculty* are far from being satisfactory. Indeed, they appear to be little more than mere expressions of opinion, or arguments based on assumed premises. To say that a moral perception necessarily implies a preceding moral impression, sensation, or primary feeling, and that every impression or sensation, whether moral or otherwise, requires a material organ through which it is made, proves nothing, unless we first define what constitutes a *moral perception*, and prove its existence. The first element of the proposition is itself an unproved assumption. The second element of the proposition is wholly dependent on the first, and hence no better established. Can we conceive of such a mental state or act as a simple moral impression or feeling—a *sensation* of right and wrong, which comes to us like the impressions of light, sound, taste, etc., and is recognized as a primary moral perception? Perception is the mental recognition of some simple impression or sensation conveyed to the mind. But does not the most simple idea of right and wrong—an idea or conception of a moral or immoral act or state—necessarily imply comparison or a recognition of the relation of things? And is it not a clear and definite office of the intellect to compare one object or impression with another, and recognize their relations and ten

dencies? It seems to me that we can have no feeling, perception or idea of the moral or immoral, the right or wrong, except by an intellectual recognition of the relations that the feeling or act may have. A moral act implies three coëxisting conditions, namely, intention, freedom of will or volition, and motive. Omit either of these, and you deprive the act of all moral qualities. So a criminal act implies intention, volition, and malice.

Nothing, therefore, appears more clear to my mind, than that our moral perceptions and judgments, instead of being founded on primary moral feelings or impressions, are true intellectual processes. Dr. I. Ray has well said, "before a person can become insane, partially or generally, *the* mental faculty or faculties must become deranged, by which we *discern* the *relations* of *things*, and arrive at a knowledge of general truths." How we can "discern the relations of things"—that is, recognize the relation and tendency of an act or thought—without using the intellect, is beyond my comprehension. And yet, without such recognition we can have no conception of the moral or the immoral, the right or the wrong. If we turn from the domain of psychological analysis, to that of nature, both healthy and morbid, we shall find ample proof of the correctness of our position. For instance, in the lower animals we find such evidences of mind only as relate to the preservation of life and the perpetuation of the species. In the higher orders of animals, at least, we find more or less developed all the organs of special sense, with emotions and passions, but nowhere among them can we find a trace of moral sense, or the least exhibition of the idea of right and wrong. The same is true of the human *infant*. At birth it has already, plainly in process of development, all the organs and faculties of special sense, as sight, hearing, smell, taste, and touch, with the emotions and passions, including volition or will, and memory. And if the moral sense, or the faculty by which we recognize the idea or feeling of right, was a primary and distinct faculty, independent of the intellect or reason, it ought to be present and capable of some degree of recognition, like the other organs of sense and feeling, in early infancy. But no trace of such organ or faculty is discoverable at that period of life.

On the contrary, like any of the lower orders of animals, it is entirely under the control of its senses, feelings and emotions. It voids its excretions at any time or place that the sensation

or desire overtakes it. It clamors for its nourishment when hungry without the slightest regard for time, place, or convenience of others. It grasps whatever glittering or attractive thing that comes within its reach, even though both hands are already full, and without the slightest regard to the rights or feelings of any other infant in the world. And it is not until by actual intellectual development, and the acquisition of such knowledge as enables the child to see the relations of things and form conclusions, that it begins to show any recognition of right and wrong. In other words, the so-called *moral sense*, or recognition of right and wrong, instead of being a primary sensation, emotion, or feeling received through some material organ distinct from that concerned in intellection, is simply one of the highest processes of the intellect—that which most distinguishes the mind of man from that manifested by the lower animals.

If we turn to morbid or pathological conditions of the mind, as seen in the different grades of insanity or mental unsoundness, we will find it equally difficult to find proofs of a distinct organ or faculty of *moral sense*. It is, of course, only in cases of *partial* mental derangement that such proofs could be expected. These are variously classified by writers under the heads, monomania, homicidal mania, suicidal mania, kleptomania, impulsive mania, moral mania, etc. It seems to me that all cases of *partial* mental derangement are capable, by analysis, of being arranged into three classes, viz.: first, those founded on manifest delusions; second, those founded on concealed delusions, usually said to be without motive; third, those founded on sudden uncontrollable impulse.

To the first of these classes belong all those cases affected with manifest *illusions*, or perversions of the senses, by which real objects are distorted or transformed, and presented to the mind as something entirely different; and those affected with hallucinations or the presence of objects having no existence except in the imagination of the individual. The illusions in these cases may relate to the individual affected, or to any one object or class of objects exterior to himself.

He may mistake himself for a king, an officer, a servant, or a criminal; or he may regard himself as made of glass or wax; or he may attribute these mistaken qualities to any other person or thing around him. And yet, in relation to all other persons and things he sees and reasons correctly. Hallucinations most

frequently take the form of imaginary voices or conversations, either addressed to the individual, or taking place between other supposed parties within hearing. These supposed conversations generally relate to some particular subject every time they are heard. At other times, the hallucination takes the form of apparitions, or the apparent presence of persons or objects. A striking case of this kind is represented to have occurred in the city of Chicago, not long since. A young woman, returning home through the streets in the evening, imagined an evil-disposed man was following her, and that he finally overtook and entered directly and bodily into her. And she from that time would indulge in all the profane and vulgar talk characteristic of the imaginary man, claiming that it was *he*, and not herself who was talking. On other topics she saw and reasoned naturally, and became so conscious of her delusion, that she voluntarily asked to be adjudicated insane and sent to an asylum for treatment.

The second class really depends on illusions and hallucinations of the same nature as in the first class, only the delusions derived therefrom are carefully concealed by the individual, until betrayed into the commission of some strange act for the doing of which no one else can see any motive. To this class belong some of the cases of melancholia, and much the larger portion of those regarded as specimens of moral insanity. I have met with several cases in which the patients had suffered much from a particular illusion or hallucination, strongly impelling them at times to the commission of some crime, such as suicide, homicide, theft, or some act of immorality, but which they had kept carefully concealed from their most intimate friends, and only related it in confidence to their physician as a part of their symptoms, when seeking professional advice.

Such of the third class as are not simply specimens of uncontrolled passion, elicited by some manifest and adequate cause, are dependent on paroxysmal disorders of the brain, similar to those producing epilepsy. And, like this latter disease, they may originate in the brain, or they may be reflex from irritation in other, and often remote organs. By many it is supposed, that these various shades and kinds of *partial insanity* indicate the existence and derangement of particular mental faculties, and distinct material organs. But a careful analysis of the phenomena and characteristics of any number of these cases will show that they involve, not a derangement of a distinct faculty

or organ, but simply a delusive appreciation regarding a single idea, a train of thought, a single object, or a group of objects; while in relation to all else the operations of the faculties are natural. If a distinct faculty of the mind, receiving its impressions through a material organ, were deranged, such derangement would extend to all objects capable of making an impression on that faculty. For instance, if we have an organ of *moral sense* which takes cognizance of right and wrong, independent of the intellect, a disease of that organ causing false impressions in regard to one object, should produce the same effect in regard to all objects of the same class. For example, if we have such a disease of the organ of vision as causes one object to appear double, it causes all objects to appear in the same way while the disease remains the same. We never see one man double and another single at the same time. So if the supposed organ of moral sense is diseased in such a manner that it perverts the perception of right in regard to the acts of one individual, it should do the same in regard to the same kind of acts of all individuals. Such, however, is not the fact. Take, for example, the well-known case of Charles Sprague, who was tried in the Court of Oyer and Terminer of King's County, N. Y., in 1849, for assaulting a lady in the street and stealing one of her shoes. It was fully established on the trial that for two or three years he had, at times, annoyed the ladies of his own household by stealing *one* of a pair of shoes, invariably wetting and compressing it as closely as possible and hiding it away; and it was shown that two or three times ladies in the street, in that neighborhood, had been suddenly thrown down by some unknown party and one shoe snatched from the foot and carried off. The particular act for which he was arrested was performed in the morning, when he was on his way to his place of business. The lady had a valuable gold chain and jewelry fully in sight at the time, but neither on this nor any other occasion had he made the slightest effort to take anything but the single shoe. Yet all this time he was foreman in a printing office, actively in charge of extensive and important business, and exhibiting in all his dealings as just a sense of right as any one. If we suppose such a case to depend on an epileptiform impulse or temporary illusion, its explanation is in accordance with well-known facts. But it is wholly inexplicable on any supposition of disease in a special organ or faculty of moral sense. Again, if we take, not cases of

derangement in relation to one idea or train of thought, but those in which the whole temper, language, and habits of the individual become changed, like the one mentioned by Maudsley under the head of moral insanity, but first described by Dr. Pritchard in 1827, in which a little girl aged seven years, who had been "quick of apprehension, lively, affectionate and intelligent," rapidly underwent an entire change, becoming vulgar, profane, uncontrollable in passion and temper, perverted in taste so that she took her food raw, and lost all sense of propriety, passing her evacuations in the parlor or any where else, and soiling her clothes with entire recklessness, we will find it equally difficult to explain them on the supposition that the phenomena depend on disease of a special organ of moral sense. It is evident that this, and other similar cases, depend on such disease of the brain as exalts the purely animal passions, emotions and instincts above the control of volition or reason. That these cases are not dependent on disease of any special organ or faculty of moral sense, is evident from the fact that most of those exhibiting such symptoms are fully conscious of the bad quality of their feelings and acts, and not only strive against them, but bitterly lament their inability to control themselves. Even the little girl just alluded to, would often tell her attendants that she had done wrong but insist that she could not help it. It is only yesterday that a practitioner related to me the case of a lady, who for several years had been subject to paroxysms in which she would talk and act in the most vulgar and profane manner for a short time, and then suddenly recover her natural feeling and self-control, with the keenest feeling of chagrin and humiliation on account of her own conduct.

Indeed, it appears to be a constant characteristic of those cases classed as suicidal, homicidal, incendiary, etc., that the moral sense, or appreciation of right and wrong, remains in full vigor, and often causes the individual to struggle a long time against the morbid impulses with which he is afflicted. If, in designating such cases *moral insanity*, it is meant simply to indicate a group of cases of mental unsoundness characterized by predominant disturbance of the passions and emotions of the mind, without intellectual incoherence—"mania sans delire"—there need be little objection to the designation. But when the words moral insanity, or moral mania, are so used as to imply disease or derangement of a special organ of *moral sense*, or of a

primary *moral* faculty distinct from the intellect, they tend to mislead and bewilder both medical witnesses and courts, instead of enlightening either.

From the foregoing considerations, I am led to the conclusion that we shall better promote science, and more efficiently aid the cause of justice, by abstaining from all attempts to connect any form of partial mental derangement with special faculties of the mind, or with individual material organs or nerve ganglia; but remembering that the "essential character of all insanity is a *change* in the habits of thought, feeling, and conduct of the individual," and consequently that each individual case must be judged upon its own merits, our main object should be to accurately compare the alleged insane features of each case with the previous natural condition of that individual.

ON DESTRUCTIVE LESIONS OF THE CORTICAL LAYER OF THE CEREBRUM.

BY H. D. SCHMIDT, M.D.,

Pathologist of the Charity Hospital of New Orleans, and Member of the American Neurological Association.

(*Continued.*)

The numerous observations of Messrs. *Charcot* and *Pitres*, stated in the preceding part of this article, seem to speak more or less in favor of the theory relating to the existence of the so-called "psycho-motor" centres in the cortex cerebri. This theory, however, being only based upon the bare fact that, in a number of cases, lesions, affecting certain convolutions of the brain, have been observed to occur simultaneously with certain forms of paralysis, must not be regarded as firmly established until the details of this special motor apparatus are better known than at present. Nevertheless, these observations do point out the direction in which future investigations should be pursued.

The above theory, then, teaches that every motor impulse, sent by the will to a certain group of muscles, passes, before leaving the cortical layer of the cerebrum, to the psycho-motor centres, in which, as may be presumed, it receives an additional amount of motor energy, and, besides, is directed to travel a more definite route to reach the particular muscles. Leaving

these centres, it continues its course along the nerve fibres of the white substance to the true motor ganglia at the base of the hemisphere, the corpus striatum, or the nucleus lentiformis, where it receives, again, a fresh supply of energy; or, also, it may not enter these ganglia, and pass at once through the crura cerebri to the medulla oblongata; and, if passing through the anterior pyramids of the latter, cross to the opposite side to arrive there, in the motor ganglia of the spinal marrow, from which it finally reaches those muscles, to which it was directed. Any destructive lesion, occurring in the course of this tract, must be followed by paralysis of the muscles to which it leads. The paralysis itself is the result of the interruption of the nervous current at the seat of the lesion.

Dr. Brown Séquard, in his recent lectures, positively opposes, not only the theory of localization of functions, but also the view—generally adopted—of the paralysis being caused by the interruption of the nervous current. In proof of his assertions, he refers to a great number of cases of destructive lesions, having occurred in almost every part of the brain—including the crura cerebri, pons Varolii and medulla oblongata—and which were indiscriminately accompanied, or not, by paralysis. He also denies the theory of decussation of *motor* fibres in the medulla oblongata, by which the phenomena of paralysis occurring on the side, opposite to that of the lesion, has hitherto been explained. In support of this assertion, he also cites cases of paralysis on the side of the lesion.

The following are the most prominent points of Brown Séquard's teachings: There are two sets of absolutely distinct manifestations of cerebral lesion. The one consists in the immediate arrest of an activity or function; the other, in the production of an activity, or the increase of a function. In the one case, there is an inhibition or arrest; in the other, there is the setting in action of a power, or a function. A cessation of activity depends upon one and the same cause, as a stimulation of activity. In both instances, an irritation starts from the place of a lesion in the brain, which is forwarded to cells at a distance, where it may give rise either to a stimulation, or to an inhibition of their activity. Thus, a hemorrhage in the brain, in irritating the part in which it takes place, causes, by propagating that irritation to cells of distant parts, either convulsions or paralysis, or even both successively, i. e., an action, or the

cessation of an action. A disease may exist anywhere in the brain, and still produce different symptoms in different cases. Paralysis does not depend on the destruction of a nerve centre, or of a conductor. Of course, if the whole brain is removed, there will be paralysis, on account of the entire loss of sensation, and the removal of the centre of voluntary power.

Section of the anterior pyramids above the decussation, as well as destruction of tissue down to this point, produces paralysis on the opposite side. But both of the anterior pyramids may be cut, without being followed by paralysis.

Regarding the pons Varolii, he says, that in an immense number of cases, in which the disease existed in one-half of this part of the brain, the paralysis appeared on the same side. Destruction of the whole half of this portion of the brain has produced paralysis on one side only; whereas, if decussation existed here, the conductors from both sides would be destroyed, and paralysis on both sides of the body would result. He has collected thirty-two cases, in which one-half of the pons Varolii was destroyed, and which should have produced complete paralysis on both sides, but did not do so. Therefore, the theory of decussation taking place in the pons, or medulla oblongata, cannot be admitted. Decussation takes place in the spinal cord. There is no doubt that one-half of the brain has a great power of action on the other half—through the anterior pyramids and the pons Varolii—and, when disease appears on the other side, it is simply through a power of changing the action of the cells in the spinal cord, and not through a paralyzing influence. Change in the nutrition of cells produces paralysis in most cases. In disease of certain parts, there is a transmission of the degenerative changes to the opposite side. In the posterior part of the lateral columns decussation occurs.

A great alteration takes place in distant parts by producing irritation in any one part Epileptiform convulsions may be produced in guinea pigs by irritation of certain centres. A change of nutrition takes place very rapidly in the side opposite to the seat of injury. In all the organs of the body, a change may take place in one side from irritation or injury of the other, and the same thing occurs in the nervous system. The irritation is propagated from one part to another. In some cases, there is stimulation of function, and in others there is loss of function.

If one of the posterior columns of the spinal cord is cut, it is

followed by loss of sensation on the same side; but if it is simply pricked, the same results may be obtained on both sides. The apparently lesser injury may produce more extended effects. The prick produces irritation, and the power of irritation is immense. The irritation may spread according to the idiosyncrasy or individuality of the animal.

A simple irritation, such as that produced by a prick, may have an immense variety of effects. If such an irritation is produced in the brain, the animal loses the power of will, and all the cerebral activities are arrested. There may be an inhibition of most of the activities of the brain and spinal cord. The irritation must be diffused in such a manner as to stop the activities of the cells. A stoppage of the heart's action may be caused by irritation of the inhibitory centre. It is probable that paralysis is a mere arrest of the activities of the cells. Irritation of different parts of the brain may be followed by general paralysis, such as general paralysis of the insane. A sensation of vision may be produced by pricking the optic nerve on the opposite side. The irritation of certain nerve cells may be followed by alteration of the lungs, such as hemorrhage, etc.

Paralysis may occur from an activity of the inhibitory cells, and also from an alteration in the nutrition of parts. The malnutrition may occur not only in the cells of the spinal cord, but in the nerves, muscles, and every part of the system. The first cause, then, is inhibition, and the second, alteration of nutrition; and the cause of paralysis occurring on the opposite side of the lesion consists in an alteration of nutrition on the side, opposite to the primary irritation. There is no difference between the kinds of paralysis and convulsive movements, whether the disease be epilepsy, chorea, or catalepsy; all of the movements can appear indifferently on either side of the body. If paralysis depended, as is supposed, on a destruction of centres or conductors, paralysis of the same muscles, or groups of muscles, could not be produced, as is found in most cases, by lesions in widely different situations. The common type of hemiplegia from brain disease, will appear, no matter in what part the lesion may be. Whatever may be the seat of the disease, the muscles affected are the same in every instance.

In two hundred and sixty-nine cases of paralysis of the arm, a lesion was found limited to a certain place—the anterior cerebral convolution. Now, if the conducting fibres, in connection

with the two ends of the nervous route, remained isolated at the base of the brain, a disease in the centres would always produce paralysis of the arm. But it is found that such a lesion may produce paralysis of the leg, or no paralysis at all, or paralysis of the whole body. Now, if the centres of motion for the arm are seated in the anterior central convolution, paralysis must be produced by irritation; for, in forty cases, disease of the posterior lobe produced paralysis of the arm, and in forty others the disease was situated in the frontal lobes of the same side.

In other cases, again, disease situated in other portions produced the same symptoms. Therefore, it cannot be admitted that the motor centres are situated in different locations in different individuals; and there are no grounds whatever for deducing from a number of cases of paralysis, occurring in certain portions of the body, that the centres for the paralyzed muscles are situated in the place of the lesion.

In referring to the observations of *Hughlings Jackson*, who tried to show a relation existing between particular forms of convulsions and lesions in particular spots, and that irritation of the convolutions, surrounding the corpus striatum, produced convulsive movements on the opposite side of the body, *Brown Séquard* directs the attention to one hundred and sixty cases of lesions of one side of the brain, producing convulsions on the same side of the body. In cases of disease of both sides of the brain, the convulsions may appear on only one side of the body.

Many cases are met with, he farther says, in which an irritation in some parts of the system produces effects in a part at a distance. A number of persons, coming from a warm theatre into the cold air with a portion of the neck exposed, may be taken as example. The cold draught, striking the same part of the body, and causing an irritation, may in one person produce pneumonia, in another a peritonitis, in another inflammation of the bladder, in another a simple cold in the head, and so on. The same irritation in the same part is the sole cause of the whole number of cases, but the results produced are infinite in variety. The effects vary, according to the idiosyncrasy of the individual. So in brain affections which sometimes appear on one side, and sometimes on the other, producing paralysis, either on the same or on the opposite side of the body.

The above points, cited from Dr. Brown Séquard's lectures, show that he rejects the idea of paralysis depending directly on

a lesion of a particular part of the brain; or, in other words, that paralysis is due to a destruction of ganglionic bodies (nerve cells), or to a solution of continuity of the motor nerve fibres. On the contrary, according to his theory, it is caused by an irritation, starting from one point, and propagated to nerve cells at a distance. The phenomena, he says, are not due to a loss of function in that part in which the disease exists, but to an irritation starting from such a point, and carried to other parts at a distance; and furthermore, the cells of the gray matter, put in action when the will is exercised, are not aggregated in one particular spot, but are scattered all over the brain; and if loss of power of moving a limb exists, it is a loss of functional activity of the cells that produce it. As they are scattered, destruction of a considerable portion of the brain will not cause a loss of power to produce these movements, as there will be still some of this class of cells left able to perform their function. Paralysis, then, he concludes, is simply a loss of functional activity. The same phenomena occur when paralysis of the heart is produced by galvanizing the pneumogastric nerves.

In face of the numerous, apparently contradictory, facts which Brown Séquard brings forward in support of his arguments, some doubts regarding the old theory of paralysis may naturally arise; and there may be many who are inclined to accept the modern teachings of this eminent pathologist. But, in examining the subject a little closer, it seems to me that these contradictory facts might be brought in harmony, without taking recourse to the theory of inhibition. This theory is mainly based upon the fact, that the action of the heart may be arrested by the application of electricity to the pneumogastric nerve. Though this phenomena has been regarded as strong enough to bear the foundation of this theory of inhibition, it is also true that inhibitory nerve cells or centres, such as they are spoken of, have hitherto never been anatomically demonstrated. As far as regards the particular function of the nerve cells of the spinal marrow, our knowledge is confined to those of motion and sensation. Motor power has been assigned to those large ganglionic bodies in the anterior cornua, while sensation has been located in the smaller ganglionic bodies of the posterior cornua. The existence of inhibitory nerve cells, also, is quite as hypothetical as that of trophic nerve cells, supposed to superintend the nutrition of the tissues; nothing positive or definite is known of such

centres. And, though the phenomena which indicate inhibitory action are true, I must confess that I have thus far not succeeded in understanding the mode of operation of such a process. I can understand how a stimulus, applied to the peripheral part of the nervous apparatus, may be propagated along an afferent nerve and produce a sensation in its centre; or, how an impulse, in the form of liberated nervous energy, may arise in a motor centre, and, travelling along an efferent nerve, finally be spent in the contraction of a muscle; and furthermore, how a stimulus, applied at the periphery, if sufficiently strong, may be propagated from centre to centre, and even affect the whole nervous apparatus; or, how an irritation existing in one organ may cause an irritation in another; because, in all these cases, it is the extension of the same stimulus, from place to place, that produces the different phenomena. But the phenomena of inhibitory action is not so easily explained, as there are two stimuli concerned in it, which, coming from different centres, must meet with each other. An inhibitory action, therefore, could only take place in the muscles by a natural neutralization of the two stimuli. Against this supposition some objections may be raised.

The principal objection to the old theory of paralysis lies in the discrepancy of relationship between the locality of the lesion and the locality of the paralysis. In most cases, as we know, the paralysis affects the limbs of the side opposite to that of the lesion; but there are certainly a considerable number of exceptions to this rule, as have been mentioned above. The phenomenon of paralysis, appearing on the right side in one case and on the left in another, while the lesion in both cases is situated in the same locality in the brain, can be only explained by examining a little closer the routes, especially those in the medulla oblongata, along which a nervous impulse may travel to get to the muscles of one or the other side. It is an established fact in physiology, that a section of the posterior white columns of the spinal cord is followed by a loss of sensation, and that a section of the anterior columns will cause a loss of motor power. In both instances, the loss will appear on the same side on which the section is made. But, if such a section is made at some point above the decussation of fibres, by which the anterior pyramids of the medulla oblongata are formed, the phenomenon will appear on that side of the body which is opposite to that of

the section. Sections of one-half of the pons, or of the crura cerebri, as well as injuries of the cerebral ganglia, are accompanied by the same phenomena. The cause of the effects of the injury appearing on the other side, is so well known as to require no further comment. It remains only to find an explanation for the exception to this rule; this may, perhaps, be accomplished in examining the mutual relations of the anatomical elements of the medulla oblongata. In doing so, the anterior pyramids deserve our first attention. They are derived from the lateral and posterior white columns of the spinal marrow. The greater portion of the fibres of which these columns consist, pass through the gray substance of the spinal marrow obliquely forward towards the anterior median fissure, and, crossing over to the other side in front of the central canal, take their place in front of the anterior columns. In doing so they press the latter—which, it must be remembered, are motory in function—behind them and toward the median line. After the decussation is accomplished, the fibres that were engaged in it, and now called anterior pyramids, pass upward through the pons into the crura cerebri; while the fibres of the anterior columns of the spinal marrow, which took no part in the decussation, pass also upward to terminate in the substantia reticulares. This reticular substance represents a network of numerous fine, vertical and horizontal fibres, comprising fibres derived from the lateral columns, as well as all others which pass in front of the remaining gray substance; it also finally receives all fibres of the anterior columns. The anterior pyramids, while passing through the pons Varolii, undergo a division into smaller bundles by the transverse fibres of this part of the brain; but, before emerging from it, they are again collected into larger bundles which, together with other bundles of nerve fibres derived from the reticular substance, form one part of the crura cerebri, called the "basis;" while the other part, called the "tegmentum," is formed by the remaining bundles of fibres derived from the reticular substance, together with fibres coming from the crura cerebelli ad corpora quadri gemina. The remaining fibres of the lateral and posterior columns of the spinal marrow form the restiform bodies, which connect the cerebellum with the medulla oblongata.

Besides these bundles of vertical and horizontal nerve fibres, a considerable number of ganglionic bodies take part in the formation of the reticular substance. And, as the processes of these

bodies extend into different directions, it may be presumed that, while a number of them may be connected with the fibres in question, others give rise to new fibres which may pass in any direction.

But the decussation of those nerve fibres of the lateral and posterior columns of the spinal marrow forming the anterior pyramids, as before mentioned, is not the only one taking place in the medulla oblongata. There is also the *raphé*, a body composed of fine horizontal nerve fibres, running antero posteriorly through the medulla, and forming a septum. These are especially derived from those arciform fibres encircling the surface of the medulla, and forming the so called "*stratum zonale.*" Through this raphé a considerable number of fine fibres, derived from different sources, are passing from one side to the other.

The above sketch of the course of fibres in the medulla oblongata is far from being complete; but as far as it goes, it will serve in forming some idea of the anatomical complexity of this part of the cerebro-spinal axis, and show that, even after destruction of the anterior pyramids, motor energy may still pass along the nerve fibres of the anterior white columns of the spinal marrow, which, as has been shown, take no part in the decussation, but contribute to the formation of the reticular substance. Thus an impulse of motor energy, originating, for example, in the cortex cerebri of the right hemisphere, may either pass through the anterior pyramids to the opposite half of the spinal marrow, and move the muscles of the left limb, or pass through the reticular substance directly to the anterior column of the spinal marrow of the same side, and move the muscles of the right limb. Besides the decussation of fibres in the medulla oblongata, there are others taking place in the spinal marrow between the fibres of its different white columns. But, as a full discussion of the various routes along which motor energy may travel in those cases—forming an exception to the rule—to arrive on either side of the body, will take more space and time than I can spare at present, the above indications may suffice.

In pursuing the nerve fibres, forming the crura cerebri, further upward, it is found that while a portion continue their course without interruption to the cortical layer of the cerebrum, and forming the *corona radiata*, others enter the large ganglia at the base of the cerebrum. A portion of these fibres may pass directly through these ganglia to the cortex, while the rest most

probably terminate there in the ganglionic bodies, from the processes of which new fibres arise, which also pass to the cortex cerebri. Thus it will be seen, that destructive lesions may even take place here without producing paralysis, as long as the integrity of only one of the motor tracts is preserved.

In accepting the theory of the existence of special motor centres in the cortical layer of the cerebrum, of course, the mental or intellectual centres, performing the functions of the mind, must be sought in some or all convolutions, situated beyond the motor zone, which still would form the greater part of the cortex cerebri.

Without speculating upon the particular mode of operation of the mechanism of the mind, the inference drawn from the theory of localization of cerebral functions in general would be, that the motor impulse, originating in the convolutions supposed to be the seat of the will, is progagated by the commissural nerve fibres of the cortical layer, from convolution to convolution, to the motor zone, whence it travels along the fibres of the white substance, either through the cerebral motor ganglia, whichever they may be, or directly through the crura cerebri, pons Varolii, medulla oblongata and spinal marrow, in order to finally reach the muscles.

In the cerebrum, the mutual communications existing between the numerous convolutions, as well as those existing between these and the larger ganglia, are as numerous and complex as those in the pons Varolii and medulla oblongata; and it may well be said that neither physiological experiments, nor pathological observations, will ever explain these contradictory phenomena collected and forwarded by Dr. Brown Séquard in support of his arguments, until histology will have revealed the most minute details of the cerebral mechanism.

The short sketch which, in the preceding part of this article, I have endeavored to draw of the opposite theories existing at present in explanation of the phenomena accompanying destructive lesions of the cortical layer of the cerebrum, I trust will suffice to assist the reader in forming his opinion on the subject. I shall now proceed to report some of the cases of lesions of the brain which, not long ago, occurred at the Charity Hospital. As will be seen, they speak neither definitely for the one nor the other theory. The case of the woman, in which the organic disease of the brain was hastened to a fatal issue by opium poi-

soning, will be particularly interesting, for it shows that sometimes lesions may exist in the brain for a considerable time before fatal symptoms make their appearance.

Case 1. On the evening of December 15th, 1877, Mrs. M., a French lady, 58 years of age, coming from the parish of Lafourche, entered the "Stranger's Hotel" in this city to take lodgings. A room was assigned to her. In a conversation with the lady of the house, she mentioned that through the recent death of her daughter she had become tired of life. From her leaving the light burning, and walking about her room during the night, it was supposed that she never lay down to sleep; and when, in the morning the servant, in order to serve her with coffee, knocked at the door, no answer was received. No notice was taken of this circumstance at the time. But when, at breakfast time, after repeated knocking, no further answer was received, the door was forcibly opened and the lady found upon the bed in a state of unconsciousness. A physician, called, pronounced the case as one of opium poisoning. The same evening she was sent to the Charity Hospital. A four-ounce medicine bottle, containing two ounces of laudanum, subsequently found in her room, corroborated the diagnosis of the physician.

When she was admitted to the hospital on the evening of December 16th, she was in a state of deep coma. Hemiplegia of the left side, with facial paralysis of the right was discovered by the flaccidity of the limbs. At 10 o'clock that evening, the respirations were two in one minute; at 11 o'clock they had increased to three. Electricity and other stimulants were applied, and the first signs of reflex action were observed on the next morning, about 10 o'clock. In raising the lid of the right eye, and touching the ball of the eye with the finger, it would move, while the left eye remained motionless when the conjunctiva was touched. The patient remained in a semi-comatose state until December 21st, the fifth day after her admission to the ward. On this day consciousness returned, and she was able to tell her own story, confirming what has been stated above. The urine, which during her state of unconsciousness had to be removed by the catheter, was now voided without difficulty. Soon after she was able to sit up in bed, and even to turn herself to a certain extent. The paralysis also seemed to improve, for on December 23d she could slightly move the left inferior limb.

However, on the same day a delirium supervened, which lasted until December 24th, 10 o'clock p. m., after which time she became quiet by exhaustion, and died two hours afterwards at midnight.

A post mortem examination was made on December 25th, thirteen hours after death, the results of which were as follows: Appearance of dura mater normal. Cerebro-spinal liquid increased. A considerable serous exudation—in some places of a gelatinous consistence—was found to have taken place into the subarachnoid space. The appearance of the pia mater indicated the existence of hyperæmia in such a degree as may have amounted to meningitis. Most of the larger veins were filled with blood; and the microscopical examination of small pieces of this membrane revealed the same condition in the arterioles, capillaries and venules, though without any inflammatory exudate, in the form of cells, in the close vicinity of these vessels. The ventricles of the brain were also filled with a serous exudate. Some of the larger arteries of the pia mater were found in an atheromatous condition. Besides a general stiffness of their coats throughout, a complete atheromatous degeneration, in the form of those well-known bone-like knots, was found on the basilar, and anterior, middle and posterior cerebral arteries, and also on some of their subordinate branches.

After a careful removal of the pia mater from the cerebrum, some extensive lesions were discovered in the cortical layer, extending into the subjacent white substance. They consisted of capillary or punctiform apoplectic hemorrhages into the cortical layer, with softening of the subjacent white substance, and were situated in the following portions of the cerebrum. In the right hemisphere, they extended throughout the walls of the whole central sulcus (fissure of Rolando), thus embracing both central convolutions. But, while in the anterior central convolution the lesion extended throughout the whole convolution into the sulcus præcentralis, it only affected of the posterior central convolution the anterior and upper portion, thus leaving the sulcus interparietalis untouched; though the inferior portion of this convolution, forming a part of the so-called operculum was particularly affected. One and a half inch anterior to the præcentral sulcus, another apoplectic hearth or foyer was found, occupying the gyrus frontalis medius, and extending into the gyrus frontalis inferior, the so-called centre of speech

of *Broca*. A third foyer occupied a portion of the parietes of the interparietal sulcus—i. e., its middle third, forming the highest portion—extending into both the superior and inferior parietal lobules; while a fourth lesion, situated in the wall of the transverse occipital sulcus, extended into the first and second occipital convolutions, and into a portion of the angular gyrus of the inferior parietal lobule. In the left hemisphere, also, the first and second occipital convolutions, surrounding the transverse occipital sulcus and the posterior extremity of the interparietal sulcus, were found to be the seat of a punctiform apoplexy with softening of the subjacent white substance.

Both macroscopical and microscopical examinations showed that the capillary hemorrhages, which gave rise to these extensive lesions, must have taken place at different periods. Immediately after the removal of the brain from the cranium, namely, when a transverse section through the organ was made, the puncta, of which the apoplectic foyers in the cortical layers consisted, appeared very numerous, and some of them of a brighter red than the rest. But when these sections, after having been laying in a weak solution of bichromate of potassa for a few days, were examined again, the puncta were not quite so numerous. The blood of the most recent of these hemorrhagic foyers, namely, not having had sufficient time to coagulate more firmly, had been washed away by the water of the solution; while, on the contrary, those minute drops of blood forming the remaining puncta, having escaped from the capillary vessels at an antecedent period, had had sufficient time to coagulate, and even to organize sufficiently to resist the solvent action of the water of the solution. The subsequent microscopical examination proved the correctness of this view. For, in thin sections, the minute effusions of blood were discovered to be already surrounded by distinct fibrinous capsules consisting of a number of thin lamella, the formation of which could not have taken place during the lapse of a few days; that is, from the time the patient took the laudanum up to her death. Thus the age of the hemorrhage may be approximately judged by the degree of organization of fibrinous capsules—though the formation of these capsules is not universally observed to take place in these punctiform hemorrhages.

The microscopical examination of the pia mater, covering the diseased portions of the cortical layer, revealed that the minute blood vessels, particularly the arterioles and capillaries, had

undergone fatty degeneration. The process was observed to commence in the nuclei of the vessels, which were transformed into a number of fat globules; in some instances one large fat globule occupied the whole place of the nucleus. In the arterioles, the degenerative process commenced in the nuclei of the adventitia. While a number of vessels appeared only dotted with fat-globules, there were others completely degenerated, and almost covered with smaller and larger fat-globules. In these instances, no nucleus could any more be discovered. Many of the capillaries had lost their double contour, and presented a granulous appearance; the same was observed in a number of arterioles. The largest degenerated arterioles measured about 6-100 mm. in diameter; their walls appeared contracted into short and deep wrinkles. Most of the degenerated vessels were empty; only in isolated spots, small collections of blood corpuscles were observed.

The blood vessels of the diseased parts of the cortical layer and of the subjacent softened white substance were found in the same condition as those of the pia mater, above described.

In examining thin transparent sections of those parts of the cortical layer affected with punctiform hemorrhages, it was found that the large pigment granules, held by those small ganglionic bodies of the upper stratum, had considerably increased in size, as well as in number. In some places these granules were collected in quite large and distinct masses, of a diameter amounting to 1-300 mm. Nothing abnormal was observed in the structure of the ganglionic bodies themselves, or in the other nervous elements, composing the cortex cerebri. In sections, made from the neighboring healthy convolutions, no increase of pigment was discovered.

The subjacent white substance of the diseased convolutions was, as already stated, in a condition of softening. The microscopical examination revealed that the degenerative process was chiefly confined to the nerve-medulla of the nerve fibres, in consequence of which a great number of axis cylinders were found, often to a considerable extent, deprived of this covering layer; though in their course, small isolated portions of the medulla were observed to be left. Most of those fragments of nerve fibres which had retained their medulla presented a varicose appearance. The diameter of the greater number of denuded axis cylinders amounted to only 1-1200 mm., or slightly more; but there were

also a number of others, of which the diameter ranged from 1-600 to 1-300 mm. Small masses of fat-globules of about 1-60 mm., or more in diameter, were also observed throughout the white substance. The fine fibrillæ of the neuroglia appeared to be unaffected.

The cerebellum, though rather soft in consistence, was found to be free from organic lesion; its blood vessels, however, were filled with blood.

In regard to some of the other organs, it was found that the lungs were affected with emphysema in several places, especially the left one, while a portion of the right presented a congested appearance, in some places dark enough to suspect the occurrence of apoplexy. For the want of time, no special examination was made of these parts. The liver was to a considerable extent in a condition of fatty degeneration. Spleen, heart and kidneys were normal.

The above case presents some points of interest worthy of a short comment. Judging from the condition of the brain, revealed by the post mortem examination, it becomes obvious that the organic disease of that organ must have existed perhaps for a considerable time, previous to the attempt of suicide which the patient had made. Some additional facts relating to the history of this lady, and communicated to me shortly after her death, proved that she had been subjected to continued depressing influences which, in gradually undermining her health, promoted the degenerative processes taking place in the brain and liver, and probably also in the lungs. Before coming to New Orleans, she had been living with her daughter—who, as it appears, was a lady of education, able to teach music and several languages—in the country; and, moreover, in an impoverished condition to which, perhaps, they had been reduced by the failing health of the daughter. Depending for some time on the charity of the neighbors, to whom they were strangers, the daughter first succumbed, leaving the mother alone, a stranger in a strange country. The depressing influences of her situation, both mental and physical, of course, hastened the degenerative process going on in the blood vessels of the brain. The nutrition of the cerebral substance itself became also deranged, in consequence of which a state of *melancholia* was gradually induced. And it was obviously under the influence of this disease that the

patient made the first attempt of suicide by drowning, at a time when she was still living in the country, and shortly after the death of her daughter. Having failed in this attempt by the interference of the neighbors, she left the place with the intention, as she had expressed, of putting an end to her life at New Orleans.

From the above circumstances, as well as from the organization of the fibrinous capsules of the punctiform hemorrhages, which I observed, we may judge that these hemorrhages took place, perhaps, a considerable time before the death of the patient, and were only accompanied by symptoms of no alarming nature, such as vertigo, drowsiness, etc., which soon passed away. In comparing the results of my examination of several cases of capillary hemorrhage of the brain with their clinical history, I have reason to think that such hemorrhages, if not extensive, may occur without being accompanied by loss of consciousness, or other fatal symptoms. And therefore I presume, that in this case limited hemorrhages took place which, together with the diseased blood vessels, interfered seriously with the nutrition of the surrounding tissues of the cortical layer of the cerebrum, and, in depressing their normal actions, gave rise to that mild form of insanity known as *melancholia,* which in many cases is characterized by an inclination to suicide. The nerve fibres of the white substance of the diseased convolutions, also—though still intact, and able to act as conductors—must nevertheless have been already, at this time, affected by the degenerative process; for it could not be easily presumed, that the softened condition in which they were found after death could have been produced in the short time intervening between the opium poisoning and the death of the patient.

Excepting the symptoms of melancholia, no other abnormal physical symptoms, such as paralysis, were noticed on the patient. It may be supposed, therefore, that the lady, after retiring to her room took the laudanum, the first effects of which, being stimulating in character, made her restless, and induced her to walk the room during a portion of the night. But, in proportion to the absorption of the poison into the blood, the stimulation increased to such an extent as to cause a congestion of the brain, which gave rise, not only to the stupor and coma, but moreover caused the rupture of a number of capillary vessels, followed by punctiform hemorrhages, now accompanied by

hemiplegia. As the quantity of opium taken was not large enough to cause the death of the patient, its depressing influence passed over after the lapse of some days, and consciousness gradually returned, though the paralysis remained. But even this affection seemed to improve, when a sudden and violent reaction set in, causing delirium, and ending in meningitis and death.

As regards the lesions in the cortical layer of the cerebrum in this case, they were of such a nature as neither to prove nor disprove the theory of the existence of psycho-motor centres in the cortical layer. If my view, regarding the time of occurrence of the capillary hemorrhages, is correct, this case would show on the one hand, that such hemorrhages may take place in these centres without being directly followed by paralysis; but also, on the other hand, that hemiplegia will follow, provided the lesion is sufficiently severe. Thus the first punctiform hemorrhages, which I found surrounded by fibrinous capsules, may have occurred without producing any paralytic symptoms, while the last, occurring at a time when the degeneration of the vessels, as well as that of the nervous elements, had already progressed to a certain degree, produced the hemiplegia at last.

(*To be continued.*)

INVESTIGATIONS ON THE EFFECTS OF PROLONGED MUSCULAR EXERCISE ON THE EXCRETION OF UREA, URIC ACID, PHOSPHORIC ACID, SULPHURIC ACID, AND CHLORIDE OF SODIUM.

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It is important that the physician and physiologist should embrace those comparative rare opportunities in which individuals perform definite mechanical labors in carefully recorded periods of time, for the determination of the amounts of those excrementitious compounds which represent the waste of the blood, and of the muscular and nervous tissues.

The results thus obtained are valuable, as furnishing data for

the proper estimation of the disturbances occasioned in the chemistry of the body by the action of morbific agents in certain diseases.

When the individuals undergoing extraordinary muscular exertion in definite and carefully recorded periods of time, not only consent to the investigation, but also exercise the greatest care to render the results accurate; and when no effort is spared on the part of the chemist to secure the correct determination of the products of the chemical changes of the organs and tissues, by the employment of the most approved instruments and methods of research; the conclusions may be accepted for purposes of comparison with the observations made in other states of the human system, as of rest, variations of diet, starvation, and disease.

Observations on the Urinary Excretion, and especially upon the Amounts of Urea, Uric Acid and Phosphoric Acid, Sulphuric Acid and Chloride of Sodium Excreted in Definite Periods of time, by the Pedestrian Henry Schmehl, during his recent Walk of 500 Miles, in 142 Hours 17 Minutes and 5 Seconds, in St. Patrick's Hall, New Orleans, Louisiana.

Henry Schmehl; native of Germany; age 28 years; weight 145 lbs.; height 5 feet 11 inches; broad shoulders; well-formed limbs; large feet; athletic figure; fair complexion; blue eyes; light hair; pleasant expression of countenance, with determined, well-set mouth, prominent nose, and high cheek bones; good cerebral development. In walking, the stride of the pedestrian measured three feet and nine inches, and the entire body, chest and arms were thrown in motion. The movement of the arms appears to be as great as those of the lower extremities. The legs move with the freedom and ease of those of the dromedary.

Schmehl commenced his walk in St. Patrick's Hall at 9.04 p. m., Monday evening, February 4th, 1878. At 8.05 o'clock, p. m., February 5th, he completed the 100th mile: time, 23 hours 11 minutes; this included over 4½ hours occupied by the pedestrian in sleep and in taking his meals; the actual walking time was about 18 hours. The 100th mile was made in 8 minutes and

5 seconds; the average time for each mile was ten minutes and a half.

At 9½ o'clock p. m., February 6th (Wednesday), Schmehl completed the 180th mile. This was a falling off of 20 miles in the performance of the 1st 24 hours, which was accounted for by the fact that he felt sore about the feet and legs, from his extra exertions on Tuesday, the 5th inst. He made the 169th mile in 8 minutes, by special exertion.

His average continues about 11 minutes per mile. With the exception of some soreness about the feet, his condition and health are good, the pulsations of the heart being not over 98 per minute when at rest.

Commenced collecting the urine of Schmehl on Thursday, February 7th, 11.45 a. m.

Dr. Samuel D. Hamilton, of Waterford, Mississippi, kindly consented, with the full approval of the pedestrian, Mr. Henry Schmehl, and of his banker, Mr. Dick Sims, to superintend the rigid collection of the urine excreted up to the moment of the termination of the walk.

I furnished the necessary glass vessels, and each day the entire amount of urine was transmitted by Dr. Hamilton to my Practical Laboratory, Medical Department University of Louisiana, corner Common and Baronne streets, 2d floor.

Dr. Hamilton informed me that Mr. Schmehl manifested great interest in the investigation, and was scrupulously exact in preserving the entire amounts of urine passed.

From 9½ o'clock p. m., February 6th, up to 11.45 a. m., February 7th, 1878, Schmehl walked 50 miles, and the pedestrian had therefore, up to the moment of the commencement of the collection of his urine, walked 230 miles, in a period of 61 hours and 41 minutes, including rests and periods consumed in eating. During this period he rested about 15 hours, making actually on the track 46.41 hours. Average number of miles per hour for entire time, including rests, 3.74; average number of miles per hour whilst on track, 4.95.

Amount of urine passed during 24 hours, from Thursday, February 7th, 11.45 a. m., to Friday, 8th, 11.45 a. m., 1500 cubic centimetres. Urine light brownish-yellow color; clear; no deposits; strong acid reaction. When boiled, the urine emitted bubbles of carbonic acid, and let fall a heavy white deposit,

which was entirely and promptly soluble in nitric acid, and which upon chemical examination proved to be not albumen, but the phosphates of lime, magnesia and ammonia. These phosphates were held in solution in the urine by carbonic acid, which was dissipated by heat. The excess of carbonic acid in the urine appears to have been derived from the porter and the seltzer water, which the patient took in considerable quantities.

Specific gravity of urine 1029.

1500 cc. of urine passed during 24 hours, February 7th, 11.45 a. m., to February 8th, 11.45 a. m., contained:

Urea	970.20 grains.
Uric acid	9.00 "
Phosphoric acid	75.07 "
Sulphuric acid	77.20 "
Chloride of sodium	171.88 "

Distance walked during the 24 hours in which the preceding 1500 cc. of urine were excreted (February 7th, 11.45 a. m., to February 8th, 11.45 a. m.), 85 miles.

Actual time on the track, 17 hours and 40 minutes; rested 6 hours and 20 minutes. Average number of miles per hour, including entire time of 24 hours, 3.54 miles. Average number of miles each hour whilst on track (17 hours 40 minutes) 4.8 miles.

Amount of urine excreted during 24 hours, Friday, February 8th, 11.45 a. m., to Saturday, February 9th, 11.45 a. m., 1650 cubic centimetres. Specific gravity 1025. Reaction acid. Urine turbid from slight deposit of urates and phosphates. Urine of a lighter color—reddish yellow. As before, the urine contained much carbonic acid, and let fall a heavy white deposit of the phosphates, when subjected to the action of heat. The urine is not so strongly acid as upon the preceding day.

1650 cc. of urine excreted during 24 hours (Friday, February 8th, 11.45 a. m., to Saturday, February 9th, 11.45 a. m.), contained:

Urea	914.76 grains.
Uric acid	13.20 "
Phosphoric acid	69.87 "
Sulphuric acid	49.76 "
Chloride of sodium	127.05 "

Distance walked during the 24 hours in which the preceding specimen of urine was collected (February 8th, 11.45 a. m., to

February 9th, 11.45 a. m.), 83 miles; on the track 17 hours and 20 minutes; rested 6 hours and 40 minutes. Average number of miles during the entire period of 24 hours, 3.45 per hour; average number of miles each hour during active exercise, 4.83.

Total distance walked up to 11.45 a. m., February 9th, 398 miles; it was therefore necessary that the pedestrian should still walk 102 miles to complete the 500 miles in the stipulated time.

Amount of urine passed during 24 hours, February 9th, 11.45 a. m., to February 10th, 11.45 a. m., 1715 cc. Urine of lighter color—deep yellow. It is not only more abundant, but is of less specific gravity, and its reaction is neutral. Specific gravity 1022. These changes in the urine appear to be due to the more free use by the pedestrian of porter, champagne, and seltzer water. When boiled, heavy white deposit of phosphates, soluble in nitric acid.

1715 cc. of urine passed during 24 hours (February 9th, 11.45 a. m., to February 10th, 11.45 a. m.), contained:

Urea	789.02 grains.
Uric acid	12.00 "
Phosphoric acid	47.20 "
Sulphuric acid	53.00 "
Chloride of sodium	78.90 "

There was an evident flagging of the powers of the pedestrian during the 24 hours just specified, as the fifth hundred miles were completed in 32 hours 51 minutes and 25 seconds, whilst the preceding fourth hundred miles were completed in 29 hours 4 minutes and 20 seconds.

Schmehl completed the walk of 500 miles at 7.21 o'clock p. m., this day, February 10th.

The entire time consumed in walking the 500 miles, was 142 hours 17 minutes and 5 seconds.

Amount of urine passed (during 7 hours and 36 minutes) from 11.45 a. m. to 7.21 o'clock p. m., February 10th, 1475 cubic centimetres. Light yellow color; slightly turbid. Light deposit of urates. Reaction neutral. Specific gravity 1023. Heat drove off the excess of carbonic acid and caused a precipitate of the phosphates, as in preceding specimens.

1475 cc. of urine passed during 7 hours and 36 minutes (11.45 a. m., to 7.21 p. m., February 10th), contained:

Urea	601.80 grains.
Uric acid	7.35 "
Phosphoric acid	30.10 "
Sulphuric acid	43.05 "
Chloride of sodium	111.82 "

It is evident from the results of the preceding analysis, that the excretion of the urinary constituents was greatly increased during the last portion of the walk of 500 miles; and such increase appears to be clearly referable to nervous excitement, and increased exertions in the presence of the large audience assembled in St. Patrick's Hall to witness the conclusion of the remarkable performance. During the last hour of the walk the pedestrian was continuously cheered by the audience, and he appeared to summon all his energies to complete the self-imposed task.

That there was no diminution in his exertions, is evident from the following record of the last 56 miles.

Miles.	Min.	Sec.	Miles.	Min.	Sec.	Miles.	Min.	Sec.
443	13	00	464	12	50	483	12	10
444	12	00	465	12	30	484	13	00
445	12	50	466	12	25	485	14	00
446	12	10	467	12	00	486	13	50
448	12	00	468	12	05	487	12	00
449	12	05	469	12	10	488	13	20
450	12	50	470	12	00	489	12	00
451	12	10	471	12	45	490	13	20
452	11	50	472	13	05	491	12	10
453	11	45	473	13	30	492	10	05
454	11	55	474	14	00	493	10	10
456	13	00	475	14	05	494	11	30
457	13	30	476	15	00	495	11	00
458	13	45	477	14	20	496	11	00
459	12	50	478	13	50	497	12	30
460	12	35	479	13	00	498	11	30
461	13	00	480	13	05	499	12	00
462	13	00	481	13	10	500	11	25
463	13	10	482	11	10			

In the following table is given the time in which each 100 miles was finished, the actual walking time and periods of rest, the speed per hour, together with some observations made by his attendant physician* upon the variations of the pulse, respiration and temperature.

* Dr. L. A. Estrampes.

FIRST 100 MILES.

	Hours.	Min.	Sec.
Full time.....	23	11	5
Actual walking time....	17	24	38
Aggregate resting time..	5	46	27
Average time per mile..		10	27

Average miles per hour, 5.71.

SECOND 100 MILES.

	Hours.	Min.	Sec.
Full time.....	29	30	25
Actual walking time....	19	4	30
Aggregate resting time..	10	25	55
Average time per mile..		11	26

Average miles per hour, 5.20.

THIRD 100 MILES.

	Hours.	Min.	Sec.
Full time..... ...	27	40	40
Actual walking time....	18	30	38
Aggregate resting time..	9	10	2
Average time per mile..		11	

Average miles per hour, 5.40.

FOURTH 100 MILES.

	Hours.	Min.	Sec.
Full time	29	4	20
Actual walking time....	19	53	3
Aggregate resting time..	9	11	17
Average time per mile..		12	45

Average miles per hour, 5.

FIFTH 100 MILES.

	Hours.	Min.	Sec.
Full time.....	32	51	25
Actual walking time....	20	39	13
Aggregate resting time..	12	12	13
Average time per mile..		12	13

Average miles per hour, 4.9.

PULSE RERPIRATION AND TEMPERATURE.

During the entire walk there was little or no perspiration. The respiration varied from 18 to 19½ per minute; and the temperature under the tongue from 98 to 98.75° F. On the first night before walking, his pulse was 82; after walking steadily without extra exertion, it rose to 98, and then, upon great exertion in walking rapidly around the track for some minutes, it rose to 108. After resting, the pulse fell to 96.

On the second day the pulse ranged from 92 to 96, except during unusual exertion, when it rose to 116. After resting three and a half hours, and sleeping one hour and a half, it fell to 85.

On the third day, the pulse ranged during exercise from 98 to 112, and after rest it fell to 82.

On the fourth day, Schmehl took his first bath, and after resting his pulse fell to 78, and rose to 98 during walking.

On the last day he commenced with a pulse of 82, which increased during exercise to 92, and after sleep fell to 72. It ranged from 84 to 106. At the end of the last mile the pulse was 100.

The following are the variations of the Pulse, Respiration, and Temperature, during the period in which the urinary secretion was examined.

February 7th.—Pulse, 96–126; respiration, 18–22; temperature, 98–100°.

February 8th.—Pulse, 86–106; respiration, 19–22; temperature, 98°–98.8°.

February 9th.—Pulse, 75–102; respiration, 18–20; temperature, 98°–98.5°.

February 10th.—Pulse, 78–106; respiration, 18-21; temperature, 98.5°–99°.

Total time consumed by Schmehl in walking 500 miles, 142 hours 17 minutes and 5 seconds.

Aggregate time walked, 95 hours 32 minutes and 3 seconds. Aggregate time rested, 46 hours 45 minutes and 3 seconds. When the last mile was finished, the pedestrian had 42 minutes and 5 seconds to spare, and had consumed on an average about 11½ minutes to each mile. The fastest mile was the first, which was made in eight minutes; the slowest was about sixteen and a half minutes. He actually walked about eighty-three and one-third miles a day.

It is said that O'Leary, in April, 1877, walked in London 500 miles in 134 hours 43 minutes and 20 seconds, and 519 miles in 140 hours 29 minutes and 50 seconds, being matched against Weston.

Schmehl consumed about one and a half pounds of rare beef steak, and one and a half quarts of fresh beef tea, and half a dozen raw eggs daily; and in addition, drank freely of porter, champagne and seltzer water. His limbs were rubbed twice daily with aromatic liniment.

The prolonged exertion was productive of no ill effects, and the next day after the completion of his 500 miles walk, he drove out to the lake with his friends.

General Results.

The preceding investigation adds another demonstration to the doctrine that increased muscular exertion is attended with increased secretion of urea, phosphoric acid, and sulphuric acid.

Schmehl excreted in the 24 hours ending February 7th, 11.45, nearly one thousand grains, or more exactly 970.20 grains of urea, 75.07 phosphoric acid, and 77.26 grains sulphuric acid. On the following day there was only a slight diminution of these constituents; and during the 24 hours ending February 10th, 11.45 a. m., only 789.02 grains of urea. 47.20 of phosphoric acid, and 53.0 grains of sulphuric acid were excreted. But even the last amounts are far in excess of those usually excreted by active, well-fed muscular men.

A great increase of urea and of phosphoric and sulphuric acids was, however, witnessed during the last seven and a half hours of the walk, during which short period the extraordinary quantities of 601.80 grains of urea; 30.10 grains phosphoric acid, and

43.05 sulphuric acid were excreted. An equal rate of excretion for 24 hours would have given about 1865.48 grains urea, 90.50 grains phosphoric acid, and 137.76 grains of sulphuric acid.

AMOUNTS OF UREA EXCRETED BY ADULT MEN UNDER VARIOUS CONDITIONS OF REST, EXERCISE, AND VARIATIONS OF FOOD.

The estimates by various observers, as to the average amount of urea excreted during twenty-four hours by adult men, vary within wide limits; but the variations may, however, be reconciled by referring them to the differences of methods of analysis, and to the different circumstances and conditions of rest, exercise and food. Becquerel estimated the amount of urea excreted by healthy adults at from 225 to 270 grains in twenty-four hours. Golding Bird placed the average amount excreted by healthy men during twenty-four hours at 270 grains. The following are the results deduced by M. Lecanu from a series of 120 analyses.

	Maximum grains.	Mean grains.	Minimum grains.
Adult men	510.36	433.13	357.5
Adult women	437.15	295.15	153.2
Old men (84 to 86 years)	295.15	125.22	61.0
Children of eight years	254.20	207.99	161.7
Children of four years	81.83	69.55	75.2

According to Lehmann, a healthy man excretes during 24 hours from 340 to 600 grains of urea. This physiologist obtained the following results from experiments upon himself.

Urea Excreted in Twenty-four Hours.

Mixed diet	501.76 grains.
Animal diet	821.37 "
Vegetable diet	347.10 "
Non-nitrogenous diet	337.90 "

In the first series of experiments, Professor Lehmann adopted an ordinary mixed diet, and took no more solid or liquid aliment than was needed to appease hunger and thirst, and abstained from fermented drinks. Every two hours he took exercise in the open air, but avoided immoderate exercise of every kind.

The result given upon the first line represents the average amount of urea passed, under these circumstances, for fifteen days.

In the second set of experiments, Professor Lehmann lived for twelve days on an exclusively animal diet, which during the last six consisted solely of eggs. He took thirty-two eggs daily, which contained 2929 grains of dried albumen, and 24.31 grains of fatty matter, or about 3532 grains of carbon, and 465.5 grains of nitrogen. From the table it is seen, that the urea increased from 501.76 grains to 821.37 grains, and contained more than five-sixths of the whole amount of nitrogen ingested.

In the third set, the experimenter lived upon a vegetable diet, and during this period the average daily amount of urea fell to 347.10 grains.

In the fourth set, the diet consisted entirely of pure farinaceous and oleaginous substances, so that the azotized matter of the urine (urea) must have been solely the result of the disintegration of the tissues, and it is seen to have undergone a rapid and marked diminution, for this diet was used only two days: the health of Professor Lehmann was so seriously affected that he was unable to continue the diet longer.

Dr. John C. Draper found the average quantity of urea excreted during 24 hours to be 408 grains. Bischoff places the average for adult men at 540 grains.

The average daily amount of urea excreted by adult males, between twenty and forty years of age, has been given at the following figures by the different observers: Parkes, 371.5 grains; Benke, 378.2; Scherer, 416.8–460.4; Moos, 444.6; Böcker, 444.9; Schneller, 458.2; Neubauer, 511.2; Kaupp, 535.1 J. Vogel, 540,0; V. Franque, 541.3; Beigel, 551.0; Mosler, 558.9; Rummel, 563.6–605.2; Kerner, 588.2; Ranke, 656.0; Hammond, 670.6; Gentle, 517,4; Warnecke, 520; Haughton, 575.8 grains.

Dr. Edmond A. Parkes, in his work on "*The Composition of the Urine in Health and Disease, and under the Action of Remedies*," gives as the mean result of numerous analyses of urine in adult males between twenty and forty years of age (the mean in the analyses being generally drawn from more than six, and often ten to twenty days), as 512.4 grains during twenty-four hours.

Dr. Thudichum, in his work on the *Pathology of the Urine*, affirms that numerous experiments have shown that a healthy

man, who lives well, discharges from 30 to 40 grammes (463 to 617 grains) of urea in twenty-four hours.

The discrepancies in these results are referable chiefly to differences of chemical processes, and in the diet and modes of living of the subjects of the experiments. Thus the process employed by Becquerel (the separation of the urea as a nitrate) yields lower results than the volumetric method of Liebig, which was employed by most of the observers whose results have just been presented, and which method was also employed by myself in the analysis of the urine of Schmehl. In addition to this, the subjects of Becquerel's experiments were Frenchmen, who, from their size and diet, appear to yield less urine than Englishmen, and probably also than the Germans.

Professor Lehmann, according to his statement of the amount of food consumed during his investigations, evidently excreted more urea than usual; and the average founded upon his experiments would be somewhat higher than the average with Americans. The digestive powers of a man who could dispose of 32 eggs daily, must surely be far above those of ordinary men in civilized life in this country.

If we adopt the standard of Dr. Thudichum, which is full high for Americans, then Schmehl excreted, during his prolonged muscular exertions, nearly double the amount of urea ordinarily excreted by well-fed and active men. The increased amount of urea in the urine of Schmehl was clearly referable to the muscular exertion required to execute on an average a journey of 83½ miles in 24 hours.

In starvation, it is well known that the urea is greatly diminished in the urine, and may fall as low as 120 grains in the 24 hours.

On the other hand, as I have shown by numerous recorded observations, in certain diseases, as pneumonia and typhoid fever, small-pox, hospital gangrene, pyæmia, remittent fever, malarial hæmaturia, and yellow fever, the urea may range from 600 to 1250 grains in the 24 hours; and that, too, whilst the patients were taking little or no food, and were in a state of almost absolute starvation. In yellow fever, when the kidneys perform their normal functions, and when there is no abnormal alteration of these organs and diminution of their excretion, I have observed the urea to range from 600 to 1000 grains in 24 hours.

In other words, in certain diseases, and especially in typhoid fever and yellow fever, the waste of the tissues in a state of almost absolute starvation is greater than those of a well-fed pedestrian who walks 83½ miles per day, and completes 500 miles in a little over 142 hours.

In such facts we have a powerful argument for the theory, that febrile poisons are related in a definite manner to the chemical constituents of the blood and organs and tissues.

Such results place in the clearest light the absurdity of those theories which would locate the origin and nature of fever solely in the cerebro-spinal and sympathetic nervous system. Without doubt the nervous system suffers in fever, and manifests its peculiar phenomena and disordered acts when affected by morbific agents; but the blood and muscular tissues and other organs suffer in a similar degree.

The fever patient, therefore, actually generates an amount of physical force and loses correspondingly an amount of matter, equivalent to the muscular and nervous force requisite to achieve a walk of 100 miles in 24 hours.

Is there, then, in the light of such facts, any obscurity about the cause of the wasting and utter muscular and nervous exhaustion induced by the action of febrile poisons?

In the case of Schmehl, the chemical acts of the waste of organic material resulted in the production of mechanical force—muscular and nervous force. In the fever patient we have the elevated temperature, rapid respiration, rapid circulation, and aberrated muscular and nervous forces. The chemical changes take place in the essential fevers, in the wrong positions and in uncontrolled amounts, and accomplish no useful mechanical results. We have in such facts, also, when coupled with the mode in which Schmehl sustained his muscular and nervous forces by beef tea and nutritious diet, and alcoholic stimulants, a strong argument in favor of the practice of those physicians who sustain the strength and chemical acts of their patients, in fever, by such easily assimilated diet as beef tea, milk and wine.

Amount of Phosphoric Acid Secreted by Adult Men under Various Conditions.

Dr. Breed, from thirty examinations of urine of four healthy

persons, determined the average daily amount of phosphoric acid to be grains 57.44; Neubauer, in the first individual, grains 47.86; in the second individual, grains 24.70; average for 24 hours, grains 36.28; Mosler, first series, 37.05; second series in the same individual, grains 57.12; average, grains 45; Dunblkenburg grains 32.94; Kaupp, 35.46; Bencke, 39.21; Ranke, 41.53; Aubert, grains 43.23. The mean of twenty-five sets of observations collected by Dr. Parkes, was 48.8 grains a day.

Dr. William Hammond determined the amount of phosphoric acid excreted by himself, under different circumstances of increased and diminished intellectual labor and the use of tea and coffee. During these experiments Dr. Hammond lived generously, as he says: "During the twenty-four hours I consumed sixteen ounces of fresh beef (boiled and roasted), twelve ounces of bread, one ounce of butter, eight ounces of potatoes, and two drachms of common salt. In the same period I drank thirty-two ounces of water. No other food, solid or fluid, was taken into the system." Under ordinary exercise and intellectual work the average daily amount of phosphoric acid excreted during ten consecutive days was, grains 43.66; during a similar period, under increased mental exertion, grains 66.15; under diminished mental action, grains 25.10; when tea was used, grains 38.07; coffee, 43.94.

Abstinence from food, or from food containing phosphorus and its compounds, diminishes the amount of phosphoric acid in the urine, but does not, as in the case of chloride of sodium, cause its entire disappearance; for whilst a large portion of this acid excreted by the kidneys is derived from the portions of food which accomplish their offices without entering into the actual composition of the various structures, still the portion which varies according to definite laws, is derived from the changes of those structures, which normally contain phosphorus and its combinations, as the nerves and muscular structures. Thus Mosler found, during abstinence from food, that the phosphates of the urine sunk to half the ordinary quantity, whilst, on the other hand, under larger amounts of albuminous substances consumed as food, the amount of this constituent of the urine was doubled.

Schmehl excreted, during the three last days of his walk, respectively, 75.07 grains, 69.87 grains, and 47.20 grains of phosphoric acid; and during the last 7 hours and 36 minutes of the

500 miles, he passed in his urine the extraordinary quantity of 30.10 grains, or on an average 90.60 grains of phosphoric acid.

The increased excretion of phosphoric acid in the case of the pedestrian, was clearly referable to the increased expenditure of muscular and nervous force.

I have shown, by numerous observations—

1st. That the amount of phosphoric acid varies with the nature of the disease.

2d. In intermittent fever, the excretion of phosphoric acid varies with the stage of the disease, being greatly reduced in the cold stage, and increased in the latter portion of the hot stage and commencement of the intermission. In a case of malarial hæmaturia the phosphoric acid, immediately after the restoration of the function of the kidneys, amounted to the extraordinary quantity of 120.12 grains in 24 hours, although the patient was in a state of almost complete starvation; and if the individual had been in a state of health and similarly deprived of food, this constituent of the urine would not have exceeded between ten and twenty grains.

3d. The amount of phosphoric acid excreted daily is increased in yellow fever (when the urinary excretion is not suppressed), in remittent fever, in typhoid fever, in small-pox, scarlet fever and measles; in hospital gangrene, dry gangrene, and pyæmia; in traumatic tetanus, and in inflammatory diseases of the cerebro-spinal nervous system, and in pneumonia and pleuritis.

Amount of Sulphuric Acid Excreted by Adult Men under Various Conditions.

If we accept the observations of Clare, Gruner, Neubauer, Parkes and others, and place the daily amount of sulphuric acid excreted by healthy men at between twenty and thirty-eight grains, with a mean of thirty-one grains, it is evident that in the case of the pedestrian Schmehl, this constituent of the urine was greatly increased, as he excreted upon the three last days of his walk, respectively, 77.26 grains, 49.76 grains, 53.00 grains; and during the last 7 hours and 36 minutes of the walk, 43.05 grains, or on an average 137.76 grains in 24 hours.

Recent investigations have not confirmed in all respects the observations of Berzelius and others, with reference to the

presence of sulphuric acid and sulphates in any considerable amounts in the juice of flesh; and they point to the kidneys and blood as the positions where these chemical changes are completed, in the final conversion of the sulphur of the albuminous compounds into sulphuric acid. The absence of sulphates from the juices of muscle may also be due to the constant passage of these salts from the muscular fibres into the blood, and the continuous and efficient elimination of the elements or compounds by the kidneys.

Whatever view we adopt with reference to the formation of sulphuric acid in the animal economy, it is evident that its increase, during the active stages of any disease, indicates an increased change of those nitrogenous elements which contain sulphur, and we must refer the increase of sulphuric acid in the urine of the pedestrian Schmehl to the same cause.

HISTORY OF THE TWO STATE MEDICAL SOCIETIES ORGANIZED IN LOUISIANA—IN 1849, AND IN 1878,

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On the 22d May, 1876, the "Plaquemines Parish Medical Association" invited their professional brethren of Louisiana to unite with them in organizing a State Medical Association. May 14th, 1877, the "Shreveport Medical Society" took similar action; and Nov. 5th, 1877, the first named society renewed its invitation, urging that a medical convention be held at New Orleans on January 14th, 1878. A number of the physicians of New Orleans, long anxious to promote the object in view, united in issuing a circular letter to the physicians of the State summoning them to meet in convention. These efforts resulted in success; the convention met on the 14th, and effected the organization of the Louisiana State Medical Association on the 15th January, 1878. Of the 58 parishes of Louisiana, 15 were represented. Of the 939 "physicians and surgeons" reported by the U. S. Census to have been in Louisiana in 1870, there were 80 who became members of the Association. Of these 80 members, 46 were from Orleans Parish, and the remaining 34 members were from

the 14 country parishes represented. After a session of three days, spent in perfecting an organization and preparing for efficient future action, the Association adjourned on the 16th of January, 1878, to meet in New Orleans on Wednesday, April 9th, 1879. The proceedings of this first and only session have been published, and furnish all additional facts of any interest, except one of great influence on the origin of this society, as also on every enterprise in Louisiana, viz., the rescue of this State from the misrule which had cursed it since 1862 by the establishment of self-government, April 26th, 1877, when Governor Nicholls secured possession of the State House and undisputed control of the State.

This *second* effort to establish in Louisiana a State Medical Association will lend interest to the history of the *first* unsuccessful attempt—which seems to have been forgotten by all except a very few. Yet the failure of the first attempt furnishes a lesson of warning, which those who have at heart the success of our second effort should not only keep in mind, but also *must so act upon* as to rectify the cause.

As in our last, so in the first attempt to organize a State Medical Association, the physicians and medical societies of New Orleans, well aware of the great difficulty of assembling physicians from the country—in a State so extensive and ill supplied with traveling facilities, and therefore necessitating a considerable sacrifice of time and money—awaited for the country physicians to manifest such interest in the enterprise as should encourage the belief that they would, by action as well as by words, make the attempt successful. Thus in both instances the country physicians have been left to initiate a state organization, which, however, has been permitted to depend for success chiefly upon the physicians of the single Parish of Orleans, which contains only about one-fourth of all the physicians of the State.

November 10th, 1846, at New Iberia, La., was organized the "Attakapas Medical Society," which, on the 9th of May, 1848, summoned the physicians of the State to meet in convention in New Orleans in March, 1849. In response, the "Physico-Medical Society of New Orleans" resolved, January 6th, 1849, to aid the Attakapas society in organizing a state medical association. The result was that some physicians did meet in New Orleans (where all subsequent sessions were held) March 20th, adjourned

to December 2d, and on the 4th December, 1849, succeeded in organizing the "*Louisiana State Medical Society*," by the adoption of a Constitution. This, among other points of interest, conferred large authority on a "Board of Administration," composed of all the officers of the society—and especially provided that "all duly licensed Apothecaries and Druggists" might be members. At this first session, there were 5 parishes represented by 48 members of the society, and of these 48 members, 44 *were from Orleans Parish!* Notwithstanding that the four country parishes had each only one representative, the city physicians gladly deferred in this case, as they did recently, to the country, and elected Dr. Hale, of Alexandria, the first president of the first state medical organization in Louisiana.

The Second Annual Session of the "Louisiana State Medical Society" was held March 15th, 1851; President, Dr. E. H. Barton, of New Orleans; members from *the country very few.* A volume of the Transactions of this session was published; and alas! for the culture of medical literature in Louisiana, which has no medical library worthy the name, this volume (which I cannot find, nor those of any other) can be found on the shelves of the "Medical Library Association" *of Boston*, which now seeks to obtain a complete list of the transactions of other sessions!

The Third Annual Session was held March 8th, 1852; President, Dr. J. M. W. Picton, of New Orleans; few members were present except from the city, and complaint was made of the *apathy* of the country parishes.* This meeting resolved to memorialize the legislature for the enactment of a law requiring the registration of births, deaths and marriages. Needless to add, that our legislature paid no attention to this able memorial, published on pages 606–620, vol. viii., N. O. Med. and Surg. Jour. Dr. W. P. Hort, of New Orleans, as chairman of a committee, presented a very valuable report on Medical Education (pages 314–328, vol. viii N. O. Med. and Surg. Jour.), urging the inefficiency in the United States of license or other laws regulating the practice of medicine, etc. Such laws, admirable in theory and in words, had just been repealed in Louisiana (1852), after

*Also, Dr. A. F. Axson, Editor of the "N. O. Monthly Medical Register," devoted an editorial to this subject in the February No., 1853, deploring the apathy in the past of the country parishes, and earnestly entreating his "country subscribers not to be lukewarm or apathetic toward this invitation" to attend the approaching fourth annual session.

forty-four years of unsuccessful experiment. The Transactions of this session were published.

The Fourth Annual Session was held March 14th, 1853; President, Dr. E. D. Fenner, of New Orleans; present 42 members, few or none of whom were from the country. The Constitution and By-Laws were revised and then adopted. It was resolved to incorporate the society under the general Incorporation Act of April 30th, 1847. The Transactions of this session were published.

The Fifth Annual Session was anounced to be held in March, 1854; Dr. E. H. Barton, of New Orleans, President. My search has yielded no other facts as to this session.

The Sixth Annual Session was held February 5th, 1855; President, Dr. Warren Stone, of New Orleans. It was resolved to reduce the annual assessment on members from $5 to $2 each. The annual proceedings were published. The "Natchitoches Medico-Chirurgical Society" applied for admission. During this year 1855 (about November), the "Medical Association of North Louisiana" was organized at Shreveport, but I find no evidence that it ever applied for admission to the State organization. Dr. E. H. Barton, the retiring president, delivered a valuable address (see N. O. Med. News and Hosp. Gaz., No. 7 of vol. ii., Sept. 1, 1855), in which he said:

"Every invitation has been extended to our brethren in the rural districts to unite with us; every courtesy felt and offered; the honors of office have been participated in with them, and opportunities for distinction on committees; *all in vain;* and with the single exception (*promised*) which this year presents—the application for connection with us as the parent society by the medical society of Nachitoches—*little or no countenance has been shown to the State Society,* although the honor of suggesting it originated in the country."*

Thus the Louisiana State Medical Society, after six years of faithful trial, had continued to represent one parish only, and its very title, *State* Medical Society, was a misnomer, sufficient to account for its demise. The sixth session adjourned to the

* For the facts presented as to the Louisiana State Medical Society, I am indebted chiefly to the N. O. Med. and Surg. Jour., pp. 127–9, 535, vol. v.; pp. 546–552, vol, vi.; pp. 547–587, vol. vii.; pp. 314–327, 606–620, 810–814, vol. viii.; pp. 709, 826–834, vol. ix.; p. 708, vol. x.; and to the N. O. Med. News and Hosp. Gazette of March 1st and September 1st, 1855, vol. ii.

second Monday in March, 1856. But neither in the medical journals, nor in the memory of two of its former members now living in New Orleans, can I find any evidence that any session was ever held after the sixth one in 1855. Evidently the cause of its death was not the war, which brought about the suspension or death of (I believe) every State Medical Society in the Confederate States—but was absenteeism, due to the indifference and apathy of the country parishes. Only the future can answer whether a like cause shall exist to produce a like result; it can do no harm for the Past to rise now from the grave, and shake its stern finger in instructive warning at the Present.

Members of the Louisiana State Medical Association, and all physicians who properly estimate the importance of organizing the medical profession for mutual aid and coöperation, may find the following facts interesting as to state medical societies.

Of the 38 states now in the Union, all except Nevada have such a society; so also has the District of Columbia; and as the design of the American Medical Association was to become the representative of state organizations, it is proper to add it to the list, swelling this to a sum total of 39 such societies now in successful operation.

Eleven state medical societies were organized prior to the organization of the American Medical Association, in the states and at the dates following: New Jersey, 1766; Delaware, 1776; Massachusetts, 1781; New Hampshire, 1791; Connecticut, 1792, Maryland, 1799; New York, 1807; Rhode Island, 1811; District of Columbia, 1817; Vermont, 1814; Tennessee, 1830.

The organization of the American Medical Association, in 1846, did apparently greatly stimulate the formation of state societies, of which 16 were organized within the succeeding ten years, in the States and at the dates following: Ohio, 1846; Alabama, Pennsylvania and South Carolina, 1848; Georgia, Indiana, Louisiana, Michigan and North Carolina, 1849; Illinois, Iowa, and Missouri, 1850; Kentucky, 1851; Maine, 1853; California, and Wisconsin, 1856.

No such societies were organized during the war (1861–5), nor in fact after 1856, until 1867. The post bellum list is as follows: West Virginia, 1867; Mississippi, 1868; Minnesota, Nebraska, and Texas, 1869; Arkansas and Virginia, 1870; Colorado, 1871 (although not admitted as a State until 1876); Florida, 1874;

Of the above 37 state societies, at least five have required re-

organization, viz.: Alabama, 1869; Arkansas, 1875; Louisiana, 1878; Michigan, 1867; Missouri, 1867. The date of organization of the state medical societies of Kansas (admitted as a state in 1860), and of Oregon (admitted in 1859), is unknown to me, and therefore omitted in the above list of thirty-seven out of the total thirty-nine societies above referred to.

SUBSTITUTE FOR THE MOTHER'S MILK DURING INFANCY.

BY GEORGE A. B. HAYS, M.D.

While looking over the *N. O. Medical and Surgical Journal* for April, 1878, my attention was drawn to an article in the "Current Medical Literature" department, entitled "Elementary Advice to Mothers and Nurses." The paper was read by M. Bienfait before the *Societé Medicale* de Reims, as a "draught of the advice to be given to mothers and nurses by the Society for the Protection of Childhood," was adopted by the Society and published in the *Canadian Journal of Medical Science.*

While coinciding in the main with the views therein expressed, I feel compelled by experience and observation to take exception to the first article contained in the "Advice," entitled *Nursing*, and to which the author has devoted nearly half the space allotted to his entire subject. Not that the rules laid down by him are essentially wrong, for if carried out to the letter, they would undoubtedly meet most of the requirements of that first and very important period of childhood. It is the almost utter impossibility of their being complied with by the great majority of people, that renders the article on *nursing* almost a nullity as far as its usefulness is concerned. Let us pass over his prefatory remarks to the effect that "it is the duty of a mother to nourish her child from her own breast, or, her health not permitting, providing for it a nurse," as being self-evident facts, and take up that portion devoted to substitutes for human milk. Therein consists the great difficulty; and I have no doubt that of the thousands of young children who die each year, and the equally great number of those that are puny and unhealthy, that one meets with daily, such result is due in many instances to the unavailing attempts made to follow similar advice to that given in M. Bienfait's article.

He advocates the substitution of animal milk, that of the cow or goat, and gives minute details as to how it should be prepared, diluted, warmed, etc.; that the milk from the same animal should be used invariably, if possible, and of course the milk should be pure in the first instance. The foregoing would prove very good, no doubt, if only within the range of common possibility. How many people resident in cities are so circumstanced as to be able to do this? Even in the country, it is physically impossible to maintain for months a regular system such as this, although pure milk is there so much more easily obtained. Indeed, one is ordinarily very fortunate if a constant supply of fresh milk obtained from different animals (of the same species) can be had. It is a known fact that the milk secreted by one and the same cow is subject to variation from day to day, said variation being controlled by the quantity, quality and variety of food obtained, and is liable to still further changes having their origin in disturbances of the functions of digestion, from which animals are scarcely less exempt than members of the human family. Further than this, the *first* milk drawn from the cow is much thinner and less rich than the *last* or "strippings" from the same milking. Bearing this in mind, it is evident that the digestive apparatus of the child that is being fed after the fashion recommended by M. Bienfait, has to deal with a very different article of food at nearly every meal, and that also, when of an age and development that render it eminently unfit for any such contest, the repeated renewal of which must assuredly inure to its disadvantage.

In cities where people have to rely upon the tender mercies and elastic consciences of the professional milkman, the difficulties are augmented. If we pay for a *pure* article of milk, I question greatly whether it would in every instance bear thorough analysis unscathed.

Many are familiar with the anecdote of the Frenchman who sent for his milkman, and bargained for a regular supply of milk at six sous per pint. He demanded that it should be pure and undiluted. "Then, monsieur, the price will be *ten* sous." "You must milk the cow in presence of my valet." "In that case I will be compelled to charge *fifteen* sous." The manifold difficulties in the way being sufficient to prevent the following of this advice with advantage, the question naturally arises, have we any better means at our command? Emphatically we have. I

do not wish to be regarded as one who would "tear down without building again," and can say positively, basing my conclusions upon experience and repeated tests within the past four years, that in the best grade of *condensed milk* we have the best possible substitute for the milk of the mother.

Its advantages are many. It agrees perfectly with the child from the day of its birth; it can be freshly prepared at any moment, night or day, in any desired quantity; it is of uniform strength or richness, the contents of the cans being homogeneous throughout; and lastly, but not least important, the cost places it within the reach of all, and it is to be found in nearly every grocery or country store in the United States. My experience has been with the "Eagle Brand" of milk (and I would advise all to avoid the cheaper and inferior qualities), and in no single instance could any objection to its use be urged. My first experience with it was while in charge of the Obstetrical ward of the Charity Hospital, New Orleans, and the happy results obtained with it among the children born in the ward (many of whom were not nursed by their mothers at all) led me to urge it since then in my practice whenever, from any cause, artificial nursing had to be resorted to. During its preparation, the condensed milk is rendered much sweeter than that usually fed to infants, but has always, as far as my observation extended, agreed perfectly with the child. Even during dentition with accompanying diarrhœa, so often seen in practice, it has never produced any exaggeration of the disease in any case I have met with.

At the present time I have under my observation a male child seven months old, that has been fed *exclusively with condensed milk*, having been denied all other food or drink since birth. It is very robust, and has not had a day's sickness; is now teething without trouble. At its birth it weighed seven and one-half pounds, when six months old weighed twenty-one and one-half pounds, and has increased in weight very perceptibly within the past month: a fair specimen of a fat, muscular little christian, and an equally good one of the effects of an exclusive diet of condensed milk. A lady in my vicinity having lost two children consecutively while teething, from general debility and malnutrition, brought about by an insufficient supply of her own milk and the wretched substitute therefor, namely, that of the cow, with all its accompanying ills, is now using this preparation

for her third child with good results, and bids fair to succeed in raising it with but little trouble. The method of giving the condensed milk is very simple. In the first month dissolve a dessertspoonful in about three-fourths of a pint of hot water, and then let it cool to the temperature of the body. Each successive month slightly increase the quantity of milk until the sixth, when the maximum is reached of two large tablespoonfuls to the pint of water.

As regards the hours for feeding, given with such precision by M. Bienfait, I have only to say that in permitting the instinct of the child to be the guide, one will seldom go astray. When it is hungry it very generally makes it manifest, and if not neglected for too long a period, will never take more than it actually needs. The best nursing bottle I find to be a common six or eight ounce, clear glass bottle, provided with a plain black rubber nipple. Each time it is used both the bottle and nipple should be thoroughly washed, and the latter placed in a glass of cold water until again wanted. The bottles and black rubber nipples are both very cheap, and to be had from any druggist. The regulation nursing-bottle (as usually made, with fancy cap, rubber tube, etc.) is more expensive, and very difficult to keep thoroughly clean.

In nearly every instance, I have had to overcome a prejudice in the minds of the parents against what they considered an artificial milk, but have subsequently been gratified by their hearty endorsement.

Should I, by presenting thus publicly this easy and simple mode of properly nourishing children when the maternal source fails them, be instrumental in ever so slight a degree in ameliorating the condition or saving the life of only one little innocent, I shall feel that my labor has not been in vain.

Plaquemines Parish, La.

DEATH OF CLAUDE BERNARD.

BY S. E. CHAILLÉ, M.D.

As a student in the Physiological Laboratory of Claude Bernard, I, in 1860 and subsequently, enjoyed the benefits of his aid, instruction and friendship; and, although circumstances have

given me the privilege of personal acquaintance with many of the most distinguished members of our profession, at home and abroad, I can recall none among them all, who have impressed me so profoundly, as did Claude Bernard, by devotion to truth, zealous love for science, extent and exactness of knowledge, ingenuity in research, and greatness of native genius. Intellectually a giant, he was grandly endowed physically; noble features adorned the large and classic head which enclosed his massive brain; and a casual glance revealed to even a stranger that he had before him no ordinary man.

Leaving Paris in 1861 to discharge my duty to the then unorganized Confederate States, I did not again meet my old master until 1867, when I found him depressed, and disabled by chronic disease from the vigorous prosecution of those original researches which had served to deservedly render him the most eminent of living physiologists. To disease it is no doubt due, that his researches and discoveries have been less numerous and famous during the past ten to fifteen years, than during the twenty preceding years. On the whole, very few men have surpassed him in extending the boundaries of science, and in adding to the knowledge of mankind. The history of all he did for science will prove to be the noblest and most enduring monument to his memory. Until this be written, it is of interest to know some of the chief events of his life, and some of the honors which grateful France, appreciative of men of science, bestowed on a mere Professor of Physiology, early recognizing him to be one of the noblest and greatest of her sons.

These facts are well given, it is believed, in the April No. of the "*Medical News and Library*," as follows:

"Died at Paris, February 10th, 1878, Claude Bernard, aged sixty-five years.

"Claude Bernard was born at Saint Julien, a small village near Lyons, on the 12th of July, 1813. After he had obtained his early education he was apprenticed to a pharmacien; afterwards he devoted himself to literature, and wrote a vaudeville, which was performed at Lyons. In 1834 he went to Paris with a new tragedy in five acts, which he showed to Saint-Marc Girardin, the famous academician, to whom he had a letter of introduction. He, however, urged Bernard to abandon letters and tragedy writing, and to study science. He thereupon entered himself as a student of medicine, and in 1839 became an inmate of the hospitals. In 1841 Magendie laid the foundation of his

subsequent career by appointing him his assistant in the laboratory of the Collége de France. In 1843 Bernard sustained his thesis on the gastric juice, and took the degree of Doctor of Medicine.

"His tastes were as strong for practical surgery as for experimental physiology, and it was not until 1853, when he took with great *éclat* the degree of Doctor of Science at the Sorbonne, that he finally decided to devote himself to the latter. Honors now began to flow rapidly in upon him. In 1854 he was called to the Chair of General Physiology at the Sorbonne, and in the same year he was elected to the Academy of Sciences, Section of Medicine and Surgery. In 1855 he succeeded Magendie in the Chair of Experimental Physiology at the Collége de France. In 1867 he succeeded Flourens in the French Academy, and entered the Museum of Natural History as Professor of General Physiology. He was made a Commander of the Legion of Honor, and in 1869 he was appointed a Senator of the Realm. The Institute and the Academy of Medicine likewise elected him to membership, and the Society of Biology made him their perpetual president.

"Claude Bernard was attacked in December last with grave vesical trouble, and on the 10th of February he succumbed to a pyelo-nephritis with uræmic complications.

"The Government, in recognition of the great service he had rendered to science, decreed that his funeral should be held at the expense of the State. He was buried with military honors on the 16th of February at the cemetery of Père-Lachaise. The funeral was attended by representatives of learned societies from all parts of France. Discourses were pronounced at the grave by M. Dumas in the name of the Superior Council of Public Instruction; M. Mézières, in the name of the French Academy; M. Bouillaud and M. Vulpian, in the name of the Academy of Sciences; M. Laboulaye, in the name of the College of France; M. Paul Bert, in the name of the Faculty of Sciences of Paris; M. Gervaise, in the name of the Museum of Natural History; M. Moreau, in the name of the Academy of Medicine, and M. Dumontpallier, in the name of the Society of Biology.

"In the death of Claude Bernard science has lost one of her most distinguished representatives, and France a most illustrious son. He was universally conceded to be the greatest physiologist of his time. His influence was felt wherever physiology was cultivated, and his name will descend to remote posterity. His discoveries of the function of the pancreas, of the glycogenic function of the liver, his experiments upon the production of diabetes by puncture of the floor of the fourth ventricle, his researches upon the influence of the great sympathetic upon innervation of the blood vessels, and those upon colorification, upon the salivary glands and upon poisons and drugs, with many others, have immortalized his name. His scientific work

is comprised, save in a single volume, in his courses delivered at the College of France, which have been from time to time published. His writings are universally known and appreciated, and are true models of experimental inquiry."

CURRENT MEDICAL LITERATURE.

CASCARA LAGRADO IN CONSTIPATION.

A writer in the *Clinic* recommends the following as effectually overcoming obstinate constipation:

℞—Fl. ext. cascara lagrado, - - - ℥ss.;
Aq. cinnamon, - - - - ℥iss.;
Tao alb., - - - - - - ʒij.
ℿ. S. Teaspoonful three times a day (before meals).

INTRA-UTERINE PREGNANCY, COMPLICATED WITH EXTRA-UTERINE FETATION—RECOVERY.

By J. M. De Rosset, M.D.

Mrs. M., a large, rather tall, and an exceedingly robust woman, aged twenty-seven years, married four years, primipara, menstruated at sixteen, and enjoyed excellent and uninterrupted health, date of last menstruation some time in November preceding my first visit, was seen by me March 26th, 1876. I found her suffering most excruciating pain in the right iliac region. She had pain in this locality during the past month at intervals, though not very severe and usually controlled by domestic remedies; she supposed herself to be pregnant. Inspection revealed a tumor rather low down in the right iliac region, as large as a small fetal head, firm and solid, and encroaching somewhat upon the median line. The surface of the abdomen beyond the tumor presented nothing unusual.

A digital examination revealed the os soft and patulous, with but little development. There also existed right latero flexion to a moderate extent, with the uterus somewhat enlarged and adherent to the tumor. The uterine sound was not resorted to as a means of diagnosis. There were also present in the mammary glands changes indicating pregnancy, with morning sickness, etc.

On the 28th of March, two days after my first visit, there appeared a slight sanguineous discharge, lasting for one day. The pain was controlled by opiates, and gradually disappeared

after seven or eight days. The tumor continued to enlarge for about one month after my first visit, and then ceased to grow, and did not again take on development. At this time the tumor had attained the dimensions of a large fetal head. The case was seen and examined by several medical gentlemen, among whom contradictory opinions were entertained as to the nature of the tumor.

After a careful review of the history and symptoms above referred to, it appeared to me that I had one of two things to deal with, viz., either an ovarian tumor or extra-uterine pregnancy: the latter seemed to have the more evidence in its favor, and I adopted this diagnosis. After the cessation of the pain her condition was comparatively comfortable, but the uterus continued to enlarge after my first visit.

During the latter part of April, fetal movements were felt in the uterus, the outlines of which were well defined, and occupied a central position. This had no effect upon the tumor other than to slightly obscure the outlines along its uterine border. Intra-uterine pregnancy was now a fixed fact, but the original tumor remained a matter of doubt. However, I was now inclined to change my diagnosis from extra-uterine pregnancy to intra-uterine pregnancy, complicated with ovarian tumor. I then anxiously awaited the period of the patient's accouchement.

On the morning of August 5th, I was summoned to attend the patient, and found her in the first stage of labor, the os dilated but little and dilating slowly, with breech presentation, the uterine contractions being rather feeble. I now availed myself of the opportunity to inspect the abdomen during the contractions of the uterus, and the following is what occurred: Beginning with each contraction, there appeared a deep sulcus or groove along the line of contact of the uterine and iliac tumors, sufficient to receive a body as large as the index finger, the sulcus disappearing on the cessation of the contraction.

At four o'clock, p. m. dilatation was complete, membranes ruptured, and a moderate amount of liquor amnii discharged. The second stage of labor was protracted, owing partly to my inability to deliver the head promptly. At seven p. m. the patient was delivered of a dead female child, weighing about seven pounds, and well-developed.

I had anticipated post partum hemorrhage. A short time before the second stage of labor was completed I administered ergot, and subsequently employed Créde's method for the separation and expulsion of the placenta; but in that I was disappointed. A rather free hemorrhage admonished me to remove the placenta immediately, which I did.

The uterine contractions during the third stage of labor were feeble, and on introducing my hand within the uterus, I discovered that the placenta was attached to the right lateral wall and fundus of the uterus, exactly at that point of the uterus in contact with the tumor. The placenta was with some difficulty

detached and removed, after which considerable hemorrhage occurred from the want of sufficient uterine contractions. Hemorrhage continued to occur at intervals for the next two weeks, and was with difficulty controlled, though not alarming as to quantity at any time after the first twenty-four hours. Nevertheless, by its continuance, it rendered the patient's condition very critical, producing an extreme degree of anemia and debility. The tumor remained much the same after the uterus was emptied, with the exception that it became more prominent and its outlines better defined.

Two weeks after labor septicæmia set in, which defied all treatment, notwithstanding the most energetic measures were resorted to, both local and constitutional. After four week's treatment, with no improvement and the patient's condition becoming daily more hopeless, with dissolution likely to occur at any hour, she became disgusted with treatment, disheartened with no prospect of recovery, she became reconciled to her fate, and refused to continue further treatment.

In this condition she remained some three weeks, gradually sinking lower and lower. The odor about her bed and person, which had hitherto been controlled during treatment by disinfectant solutions, now became so offensive that her friends could scarcely remain near her.

About the 15th of October, something was discovered protruding from the vulva. A physician was called in, one previously in consultation in the case, who removed a part of what proved to be the remains of a fetus, supposed to be near the fifth month of gestation, and in an advanced stage of decomposition; nevertheless, the placenta and cord were plainly discernible. It was also discovered that this product gained egress through the os uteri. Portions of this product continued to be discharged from time to time, together with pus and débris. The tumor undergoing marked diminution from the first escape of the putrid mass, and the general health and condition of the patient improving in a corresponding degree, the successful effort of nature to get rid of the offending mass, coupled with judicious treatment, enabled the patient to take a new lease on life, and four months from this time she was in the enjoyment of vigorous and robust health, with not a vestige of her former trouble remaining.—*The American Practitioner.*

CONCERNING DIPHTHERIA,

This widely prevalent disease is one of the leading topics in medical journals at present, and we need make no apology for the prominence given to it in our own columns. The modes of treatment suggested are of the most varied character, and time

alone can show which are, on the whole, the best. "The survival of the fittest" is pretty certain in the long run. Dr. A. Bachelder, of Pelham, N. H., sends us the following brief note on this subject:

"I wish to suggest to physicians, in treating diphtheria, to use internally a very weak solution of carbolic acid, and for the throat or fauces a solution of hydrochloric acid, about the strength of strong cider vinegar. I have treated every case successfully, so far, with the above named remedies. Croup is relieved instantly with the acid solution. As far as my experience goes, the last named remedy stops all morbid developments in the throat as surely as the hoe will stop pig-weeds in a hot, sunny day. Apply it to the throat with a brush or sponge, or use as a gargle."

A correspondent in Alabama writes that in a case of diphtheria in his own family, he took equal parts of black pepper and common salt, pulverized them finely, and with a mop applied the mixture directly to the throat. "The effect was magical," and the patient rapidly recovered.

Another correspondent in New York says that he has often tried successfully the method recommended by Dr. Field in an English medical journal, of gargling the throat with a solution of liver of sulphur, or letting the patient inhale the fumes of burning sulphur.—*Boston Journal of Chemistry.*

BENZOIC ACID.

B. Archer, in *American Journal of Pharmacy*, writing on benzoic acid in pharmacy, says:

"I have found the benzoic acid water especially useful in preparing solutions for hypodermic use. The small vials of such solutions carried in the pockets of physicians, and thus kept at a high temperature, soon undergo change unless protected by some antiseptic. It may not be out of place to say just here that physicians, who do not have daily use for their hypodermic syringes, are often annoyed by the packing becoming dry, and, consequently, so contracted that the piston will not work smoothly in the barrel. This annoyance may, to a great extent, be overcome by the addition of a few drops of glycerin to each fluidounce of hypodermic solution.

CARBOLIC ACID IN PILES.

Dr. H. I. Wells, in the *Medical and Surgical Reporter*, April 6th, 1878, writes as follows:

"In all cases of hemorrhoids or piles, either internal or external, recent or long-standing cases, I use the pure carbolic acid and olive oil, equal parts. With a good speculum I proceed to operate upon the uppermost pile first, injecting with a good hypodermic syringe of carbolic acid and olive oil, equal parts, say 4 to 6 drops, and in the course of twelve hours I proceed with the next pile, and so on, until I have injected them all. I believe the oil and acid is better than the acid alone, as I have operated a number of times, and had better results with the oil and acid mixed. The operation in my hands is perfectly painless, if the parts have been previously bathed in warm water, say 100° Fahr. Always have the bowels opened freely the day before. I am so well pleased with the operation that I believe it will wholly supersede all other operations for hemorrhoids, either internal or external."

CHLORIDE OF AMMONIUM IN THE TREATMENT OF HEPATIC DISEASE.

The following extract from an article in the *Philadelphia Medical Times* will be found interesting.

"In active congestion of the liver the special and characteristic action of the medicine will be found to be more marked than in cases of chronic hepatitis, for reasons which will be apparent from a consideration of its modus operandi.* The dose necessary for its full therapeutic effect is gr. xx., and the only condition which contra-indicates its use is the existence of a dry and hot skin, in cases of hepatitis. Under such circumstances its use should not be commenced till the skin is rendered moist and perspirable by the administration of some simple diaphoretic mixture in repeated small doses, say ʒii. liq. amm. acet. with ℥ v. tinct. hyoscyami in each dose, every half-hour. In congestion of the liver (or acute hepatitis when the skin has been made moist or perspirable by the above means) the chloride should be at once commenced in twenty-grain doses twice or thrice daily, noting carefully its effects, which are striking and remarkably regular in the order of their occurrence.

"As a general rule, about fifteen minutes after taking the medicine, the patient experiences a sensation of warmth in the epigastrium, which by and by extends, pervading the abdomen, and gradually becomes diffused over the entire cutaneous surface. The nervous system is at the same time exhilarated sympathetically and also through the circulation, for the patient now feels 'light-headed' (as he generally expresses it), and at

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* For an explanation of its therapeutic action, see my paper in *Madras Monthly Journal of Medical Science* for February and March, 1872.

times drowsy. The acute pain previously experienced in the right hypochondrium and along the margins of the lower right ribs, extending, as the case may be, forward across the epigastrium or backward to the lumbar region, is either entirely removed, or in its stead pain is sometimes referred to a point higher up and towards the base of the axillary region, where before none was complained of. At this stage of the operation of the remedy the patient often falls asleep relieved of all his distressing symptoms.

"After the lapse of another quarter of an hour, a free and equable perspiration takes place over the entire surface, which lasts for a period varying from one to two hours. In the mean time the pain, which had shifted from the lower margins of the inferior ribs of right side, will again manifest itself at or near its original position, or may be referred to one totally different, as the lumbar region, or even the right hip. With the next dose, similar effects will be observed to take place with like regularity and certainty, and with each succeeding one the interval of relief from pyrexia (in hepatitis and pain referred to the part affected, as well as sympathetic pains of shoulder, arm, etc., which latter are at times distresing) will gradually become longer, till at length, in favorable cases, the relief becomes complete and constant. After several doses of the medicine, the urine is much increased in quantity (particularly in the cold season), is limpid, and passed without uneasiness. The increase is chiefly at night, causing the patient to awake suddenly, perhaps three or four times, for the purpose of micturition.

"After a few days the appetite is much improved, and the patient craves for more food, which may be given, provided it be light, nutritive, and easily digested; but solid food should on no account be permitted, as its ingestion would, in all probability, provoke a recurrence of all the acute symptoms. The above are the more obvious symptoms experienced by the patient after the exhibition of the medicine; some of which, as the diaphoresis, diuresis, etc., being objective, are easily ascertained by the physician.

ANTAGONISM OF THERAPEUTIC AGENTS.

Dr. J. Milner Fothergill, in the *Philadelphia Medical Times*, contributes a very interesting letter, from which the following extract is made:

"At the risk of being charged with egotism and some vanity, I may refer to the subject-matter of an essay to which has just been awarded the Fothergillian gold medal of the Medical Society of London. The subject of the essay was "The Antagonism of Therapeutic Agents," a matter of great interest at the present

time, and one which will wax in importance in the future. With the exception of a confused impression as to the antagonism of opium and belladonna, our knowledge has been almost confined to chemical antidotes and their utility in poisoning—the use of sulphuric acid and of iodide of potassium in chronic lead-poisoning being an example. But recent researches have demonstrated that many agents have a physiological antagonism, which may be utilized practically. Thus, Prof. Frazer, of Edinburgh, worked out the antagonism of calabar bean and belladonna in the most thorough and efficient manner. He showed that not only could minimum lethal doses be successfully antagonized, but that considerably larger doses could be met successfully by correspondingly larger doses of the physiological antagonist. He made most exact observations as to the effect of calabar bean upon the respiration and the circulation, and showed how, when both were failing conspicuously, the administration of atropia restored them completely. In fact, the interest of the experiments performed so far has lain around those rhythmically discharging centres which preside over the respiration and the circulation. The centres for the respiration are situated in the medulla oblongata, the *nœud vital* of Flourens; while those of the circulation are essentially the ganglia which lie in the septa of the auricles and betwixt the auricles and ventricles. In both these motor centres there is an accumulation of energy which explodes rhythmically and sets the muscular mechanism in action. It is these centres upon whose activity life depends, and it is the effects of toxic agents upon these centres which make them dangerous to life. The unconsciousness produced by opium is in itself of little importance: it is the failure of the respiration first, and then of the heart next, which constitutes the real danger; and paralysis of the nerve-centres of these systems is the action of opium in toxic doses which is to be feared. Oscar Liebreich first observed that strychnia and chloral possessed a powerful antagonistic action, which might be utilized in practice; and there is a well-known case, published by Dr. Levinstein, where an overdose of chloral had been taken, and which recovered, after most grave symptoms had manifested themselves, by the use of nitrate of strychnia injected subcutaneously. Many experiments were performed by the Edinburgh committee of the British Medical Association, presided over by the late Prof. J. Hughes Bennett, by which the antagonism of various agents was demonstrated and proved.

Then Dr. Crichton Browne demonstrated how the convulsions produced by picrotoxine, the active principle of the cocculus Indicus, could be controlled by chloral. It was very interesting to watch two rabbits to each of which a lethal dose of picrotoxine had been administered, but to one the antagonistic dose of chloral had also been given. The first was subject to recurrent attacks of fearful spasm, very much like strychnia spasms, in-

cluding opisthotonos, culminating in a terrible final convulsion; while the other lay peacefully before the fire, wrapt in chloral sleep, an occasional slight twitch alone indicating the presence of the picrotoxine. But if this second rabbit were wakened out of its chloral sleep, then a picrotoxine fit would come on, resembling those in the rabbit without chloral; before a second convulsion could come on, the chloral narcosis had resumed its sway, and the animal slept on undisturbed, to awaken up well alongside the stiff corpse of its less fortunate companion. It was evident that discharges from large motor areas were excited by the action of the picrotoxine, and that chloral could restrain them if given in sufficient quantity. These experiments have had much to do in deciding the present large resort to chloral in asylums to control maniacs and general paralytics in their recurring infuriated outbreaks of violence.

Then a series of experiments were performed by the writer to test the antagonism of aconite and digitalis in warm-blooded animals. It was soon apparent that in the rabbit and the guinea-pig digitalis did not sufficiently antagonize the effect of the aconite upon the respiration to be useful. It exercised some effect if given from five to nine hours before the administration of aconite. It, however, maintained the action of the heart, which was found contracted firmly after death; but it did not prevent efficiently the action of the aconite upon the respiration. The belladonna was tried and found to be a perfect antidote, as might have been expected from its well-known action as a stimulant to the respiratory centres and to the cardiac ganglia. The animals, expiring with respiratory gasps at gradually lengthening intervals, began to respire more forcibly after the administration of belladonna, and more quickly, until normal respiration was regained. The atropia was effective in saving life up to sixteen minutes after the injection of the aconite,—a long time in aconite-poisoning, but if delayed longer it prolonged life but could not save it. Then strychnia was tried, and was found most effective, the animals recovering swiftly, often only to die in the expiratory spasm of strychnia when perfectly recovered from the aconite-paralysis. At this interesting point the Anti-Vivisection Act came into force, and brought to a close a series of experiments which are well worth carrying out by some investigator in a land less hampered than is Great Britain in the matter of scientific inquiry involving experimentation upon animals.

These observations as to the effects of certain toxic agents upon the action of other toxic agents tell us much that can be made practically useful. In the first place, this physiological antagonism has been utilized in cases of poisoning, and strychnia-poisoning has been several times successfully treated by chloral, as well as the opposite in Dr. Levinstein's case. Dr. Dobie, of Keighley, used digitalis successfully in a case of aconite-poisoning, where the man was very far gone. Here the

digitalis must have exercised some influence upon the respiration as well as the circulation, or else an effect upon the circulation is soon felt by the respiration, so closely are these two centres linked together. In a recent case the writer gave a grain of sulphate of atropia at once, subcutaneously, to a woman far advanced in opium-poisoning, with the effect of an early restoration of the respiration, which was notably failing while the pulse kept steady. Without previous acquaintance with the effect of the administration of a counter-poison to animals dying from the toxic effects of another poison previously administered, probably some hesitation might have been experienced as to the large dose adopted. The result, however, justified the size of the dose completely. In fact, our acquaintance with the subject of the antagonistic action of certain poisons must exercise a potent influence over the future of toxicology. Probably it will be found that the best plan of treating opium-poisoning will be to empty the stomach thoroughly, and then to inject subcutaneously a fourth or a third of a grain of atropia before the respiration has begun to fail; after that, to put the patient to bed, and watch assiduously the respiration, the circulation, and the body-temperature. If the respiration should still show indications of failing, to inject a second dose of atropia of equal size would be the best thing to be done, or even more if required. This would be much more effective than dragging the patient about and administering strong coffee, and would enable the medical attendant to take minute observations whose value we may not yet be in a position to estimate. A further outcome of such a plan of treating opium-poisoning would be that we would soon learn how far atropia could be trusted to antagonize the action of opium upon the centres of respiration and circulation, and how little it affects the action on the sensorium There exist excellent grounds for believing that by such combination we will be enabled to give, without anxiety as to the result, much larger doses of opium or morphia than have hitherto been thought safe, in cases of severe pain, or in the fearful cough of some cases of softening tubercle. In all cases the toxic action of the opium upon the respiration should be made the ground for action, and not any change in the pupil, as has hitherto been done. The pupil is a dubious and unsafe guide, for it may be dilated by atropine even when the dose is utterly ineffective to arrest the opium-poisoning, as was seen in a case lately recorded by Dr. Paget, of Cambridge.

Other uses of such advancing acquaintance with the effects of toxic agents upon the respiration are developing themselves. When the respiration is embarrassed in asthma we know that belladonna often gives great relief, as it also does in whooping-cough. But in order to give a remedy with some approach to rational certitude in either of these maladies, it is well to note the general condition of the respiration and be guided in the

selection of a remedy accordingly. If it be found excited give an agent which calms the *nœud vital;* if depressed, a stimulant agent like belladonna is indicated. In a little time we shall prescribe with considerably more accuracy in these neuroses of the respiration. Then, too, in chronic bronchitis with emphysema, strychnia and belladonna are very useful, and in the bulk of cases give great relief. In more acute conditions they give much promise, and a friend of mine recently pulled through successfully, by the use of strychnia, a case of capillary bronchitis which seemed as if it must necessarily end fatally. It was with much satisfaction the writer read the paper by Dr. Reinhard Weber, in the *Philadelphia Medical Times* for February 2, on the use of belladonna in collapse, and the use of agents acting powerfully upon the respiration and circulation must obtain extensively in the future in temporary asthenic conditions where life is gravely threatened without death being unavoidable, and where a slight matter even may settle the question of life and death. But the subject cannot be pursued further within the limits of a letter.

HYDROCELE CURED BY ELECTRO-PUNCTURE.

Macario *(Cbl. f. Chir.,* No. 3, 1878; from *Gaz. Med. Ital. Lomb.)* treated two cases of hydrocele of the tunica vaginalis by electro-puncture, the duration of the sitting being one minute. One was quite cured. In the other case the hydrocele returned after the lapse of ten months. In both the hydrocele had entirely disappeared within the first twenty-four hours, without the least escape of fluid through the puncture. Macario suggests the use of electro-puncture for other cysts, particularly ovarian cysts, and cites the three cases reported by Semeleder in the *Wien. Med. Presse* which were cured by this method.—*Medical Times.*

REVIEWS AND BOOK NOTICES.

Transactions of the Eighth Annual Session of the Medical Society of Virginia, held in Petersburg, October 23d, 24th and 25th, 1877. Pp. 180.

The address of the President, Dr. James L. Cabell, treats of several topics, chiefly connected with State medicine. The claims of the State Board of Health for some consideration at the hands of the Legislature receive a share of attention, for it seems that no provision has been made to give that body any

pecuniary support. In this respect we are somewhat more fortunate, owing to a modicum of good sense in former Legislatures; but, if the whole matter had to originate *de novo* in Louisiana, it is extremely doubtful if preventive medicine would receive any recognition whatever in our Legislature. The advocates of any given legislative measure, who do not belong to the Legislature, are always supposed to have some personal interest particularly involved; and whenever medical men are found supporting projects for sanitary reform, people immediately begin to suspect a cat at the bottom of a meal-tub. Apparently the doctors are trying to destroy their occupation, by the prevention of disease; but this is so contrary to the habits of Christian people in other occupations, that there must certainly be a sinister motive cunningly concealed.

Allusion is made to the current reproach that doctors will differ, as if our science were an exact one, admitting of no disagreement. We hear no such reproach about the disagreements of lawyers and clergymen, which are taken as a matter of course. The grievousness of our offence lies in this: that our disagreements result in serious consequences to those interested, while the differences of other people are of little or no importance. Therefore, for the peace of mind of the general public, physicians ought to keep their disagreements private among themselves as much as possible.

We thoroughly agree with Dr. Cabell, that the behavior of medical men when acting as experts in courts of justice is often unseemly, in the bias displayed for the party by whom they may be called. The whole system of expert testimony needs reforming, for people will be human, even if they have enjoyed the lights and advantages of a medical education. The proper remedy for the evil would be for the court to select the experts strictly in the interests of justice, and to reject any individuals as such, who might be disqualified for impartiality by relationship or other connection with either of the parties litigant in a civil cause, or with the accused in a criminal case.

Several reports follow, on special branches of medical science: on the Application of Chemistry to Medico-Legal Science, by Dr. M. G. Ellzey; on Advances in Obstetrics and Diseases of Women and Children, by Dr. Robert J. Preston; on Advances in the Practice of Medicine, by Dr. John S. Apperson; on Advances in Hygiene and Public Health, by Dr. L. S. Joynes. All these

papers have been carefully prepared, and the last is particularly elaborate.

A Special Report on the Epidemic Zymotic Diseases of Animals is contributed by Dr. John R. Page, in which he gives a brief consideration of the most important and fatal diseases which prevail among domestic animals.

Dr. Wm. Selden reports four cases of bony union after fracture of the femur within the capsule of the joint at the neck, all of the subjects being females, and three more than sixty years of age. In all these cases the great trochanter was supposed to have been driven into the cancellated structure of the bone by the violence of the shock in falling directly upon the hip, and his plan was to avoid everything tending to withdraw the trochanter from its new position. Consequently no extension was made, and eversion of the foot was strictly guarded against. The principle obviously in view is the same as we find adopted in violently rubbing together the ends of a fractured bone which shows no disposition to unite.

This Association report appears as a part of the Jan. number of the *Virginia Medical Monthly.* Taken as a whole, it is decidedly superior to the average volumes published by similar bodies. S. S. H.

Transactions of the Thirty-second Annual Meeting of the Ohio State Medical Society, held at Put-in-Bay June 12th, 13th and 14th, 1877. Pp. 203.

The annual address of the retiring President, Dr. W. J. Scott, was upon the familiar subject of Medical Education. Although we must not expect to find anything new on this topic, we are always gratified to see old ideas reiterated, in the conviction that importunity will finally gain its point. The effect of persistent agitation of a great political question is still fresh in our recollection, and it is a matter of encouragement that reform in medical education has never encountered ridicule nor violent opposition.

Another trite subject is treated without originality or force by Dr. C. S. Muscroft—the Prevention of the Spread of Syphilis, which of course involves that opprobrium of society, prostitution. It is well for scientists, and particularly medical men, to

discuss this subject, for in time light must follow our present gloom, and a way be found out of the difficulty. Dr. M. is decidedly in favor of a legalized regulation of public women, something after the plan adopted on the Continent of Europe. His statements of the benefits which have flowed from this system must be taken with reserve, for they are not admitted by all authorities. It is safer to conclude that a successful plan is still a desideratum, and it is probably reserved for a higher stage of human development to find a practicable solution of the problems of prostitution and intemperance. Society has a right to protect itself against evils which tend to impose upon it the burden of extensive pauperism, and will finally have laws for the systematic and frequent inspection of those classes which are known to be most liable to contract venereal diseases, and to put such as have contracted them under restraint; and laws also for putting habitual drunkards upon the same footing as lunatics are now rated.

A number of other papers appear, which might properly see light in medical journals, and need not be mentioned here. On the whole, we think that the Medical Society of the great State of Ohio in its thirty-second year ought to make a better exhibition of professional work, than is to be found in the generally feeble and commonplace papers of this volume. S. S. H.

The Puerperal Diseases. Clinical Lectures delivered at Bellevue Hospital. By Fordyce Barker, M.D., Clinical Professor of Midwifery and the Diseases of Women in the Bellevue Hospital Medical College; late Obstetric Physician to Bellevue Hospital; Surgeon to the New York State Woman's Hospital; Fellow of the New York Academy of Medicine; formerly President of the Medical Society of the State of New York; late President of the American Gynecological Society; Honorary Fellow of the Obstetrical Societies of London and Edinburgh; Honorary Fellow of the Royal Medical Society of Athens, Greece; Corresponding Fellow of the College of Physicians of Philadelphia, etc., etc., etc.

This admirable work is now presented to us in its fourth edition; a handsome volume, 8vo., of five hundred and twelve pages of closely printed text, and twenty-five pages Appendix and Index. Price, cloth, $5; sheep, $6.

The general popularity and rapid sale of this book furnish substantial testimony of its intrinsic merit.

Its value to the practising physician as a work for special reference, and a guide under circumstances of perplexity connected with his obstetric practice, cannot be too highly estimated.

The subjects, so elaborately treated, have been chosen with a special view to lightening the burden of anxiety and doubt, which so often weigh upon the practitioner, in determining his course in relation to the casualties of the parturient state. The work is intended to meet the necessities of the profession by supplying a treatise on the pathology of child-bed, unencumbered with the plodding details of elementary obstetrics.

Without becoming too voluminous and too comprehensive in its range for students, no systematic work on obstetrics could attempt to deal with the questions fully discussed in the work of Prof. Barker, except in a manner either so condensed or so superficial as to render them wholly unsatisfactory for clinical application.

The book is elegantly arranged in a series of twenty lectures, embracing the most frequent and important pathological occurrences of the parturient period. Each subject is clinically illustrated by cases which have come under the observation of the author. These are presented as a preface to each lecture, and are so pointedly stated as never to weary by the monotony of inconsequential detail.

His lectures on puerperal convulsions, phlegmasia dolens, puerperal septicæmia and pyæmia, and puerperal fever, have been freely quoted from by recent systematic writers and by the journals, both in this country and abroad. Indeed, it is simply the expression of a fact, when we say that this work of Prof. Barker is universally accepted as authority on the subjects of which it treats. Besides those above enumerated, we will mention some others, in order more fully to show the scope of the work:

Lacerations of the Perinæum.
Thrombus of the Vulva and Vagina.
Puerperal Albuminuria.
Mastitis and Mammary Abscess.
Puerperal Mania.

Puerperal Phebitis, Metritis, and Peritonitis; Pelvic Peritonitis and Pevic Cellulitis.

No subject is slighted, and to no one is given undue prominence; but in the elucidation of each the author has concentrated, by the power of a cultivated and logical mind, the results of a vast experience in hospital and in private practice, aggregated during a period of many years devoted to the careful observation and systematic recording of clinical facts.

Moreover, being familiar with all of the literature bearing upon these subjects, he has fully availed himself of the experience of others laboring in the same field, incorporating with his own the accumulated knowledge of others.

Space will not permit us to enter upon a critical review of these lectures severally. They command the endorsement of every physician whose obstetric practice is such as to enable him to appreciate their value.

Having carefully perused the work, we confidently recommend it, with the assurance that the money invested in its purchase is a small outlay compared with the practical treasures it contains. It should be at the right hand of every practitioner of obstetrics for enlightenment and guidance in questions of doubt, and for moral and authoritative support in pursuing a certain line of conduct in the management of pathological conditions complicating child-bed.

The fourth edition is in every particular the same as the third, and has been issued without alteration to meet the increasing demand for the work. This is explained in the preface to the third edition: "The rapidity with which former issues have been sold, eight months having hardly elapsed since the work first appeared, the flattering reception which has been universally accorded to it by the medical press, both here and in Europe, the fact that it has been republished by the Messrs. Churchill in London, and that I have been solicited to permit translations in German, French and Italian—soon to appear in Berlin, Paris, and Milan—are accepted by the author as evidence that a special work on the Puerperal Diseases was demanded by the profession."

The style of the author is so free and natural, his explanations so lucid, and his method so logical as to make the book delightfully readable, while exacting at the same time the most thoughtful attention.

The author himself appreciates his work as a creation born of the necessities of the profession:

"In describing disease, I have conscientiously aimed 'to hold, as 'twere, the mirror up to nature,' so that the picture may be recognized at the bed-side.

"The therapeutics of the maladies discussed have received prominent attention, believing, as I do, that the grand mission of the physician is to relieve suffering, arrest disease, and save life.

"In entering the room of a puerperal woman, every obstetrician must feel that the responsibility of the happiness of a family and, it may be, the life of two of its members rest, in a great measure, upon his wisdom and judgment. This responsibility is multiplied to the clinical teacher by the number of his listeners.

"Something of this feeling has had an influence in deterring me hitherto from publishing my lectures, until the experience of years should give the 'courage of my opinions.' * * * It seems singular that no book has yet appeared, in the English language, to occupy the ground which I have attempted to cover.

"If this volume meet with a success which can be accepted as proof that it is wanted by the profession. it will undoubtedly stimulate others to work in the same field, and in this way, at least, accomplish a positive good."

Kolpokleisis as a Means of Treating Vesico-Vaginal Fistule. Is the Procedure ever Necessary? (From the Transactions of the American Medical Association,) By Nathan Bozeman, M.D., etc. Pp. 13. 1877.

On Kolpokleisis and other allied procedures as Means of Treating Vesico-Vaginal Fistule, being an Answer to the Article of the late Professor Gustave Simon, of Heidelberg, entitled "A Comparison of Bozeman's Operation with that of the Author." By Nathan Bozeman, M.D., Consulting Surgeon to the St. Elizabeth Hospital, New York, etc. Pamphlet, pp. 75. Reprint from the Richmond and Louisville Medical Journal. 1877.

Zur Enstehung und Behandlung der Harnleiter-Scheidenfisteln und zur Operation der Blazen-Scheidenfisteln (Werth der Bozeman'schen Operations—Methode). Von Dr. Ludwig Bandl, Operateur em Assistent der Klinik des Prof. Karl von Braun, und Privatdozent fur Geburtschilfe der Universität in Wien. Pamphlet, pp. 53. Wien. 1878.

The history of the modern operations for the cure of vesico-

vaginal fistula, and the important part which Dr. Bozeman has performed in bringing them to their present high state of perfection are well known throughout the profession of the whole civilized world. It is not necessary, therefore, in calling attention to the publications named at the head of this article further than to say, that the button-suture of which Dr. Bozeman is the author is credited with a larger number of cures, in proportion to the number of cases operated upon, than any other procedure. Our intention now is to signalize a still farther step in the same direction by which this distinguished surgeon has brought within the benefits of his suture nearly all the cases which have heretofore been deemed incurable, and have been assigned to the operation of transverse obliteration of the vagina (kolpokleisis). The great advocate of this latter operation was the late Professor Gustave Simon, of Heidelberg, whose genius and earnestness led very many of the best surgeons in Prussia and Austria to adopt his views and practice. Professor Simon considered the existence of the following conditions to demand the performance of his operation of kolpokleisis.

"1. Great loss of substance, making it impossible to bring the two sides of the fistule together.

"2. Inaccessibility of the fistule from its high position, from the inversion of its edges, etc.

"3. Loss of the infra-vaginal cervix, and danger to the peritoneum.

"4. Hemorrhage into the bladder, where considerable, after operations.

"5. Confinement by adhesions of the stump of the cervix uteri, inside the bladder.

"6. Atresiæ vaginæ above the fistule, with immobility of the posterior border of the latter.

"7. Obliteration of the urethra, with one fistule below and another above.

"8. Uretero-vaginal and uretero-uterine fistules."

Dr. Bozeman does "not consider it (kolpokleisis) a cure for vesico-vaginal fistula at all, and, at best it can only be regarded as an expedient of doubtful propriety." Of the eight clearly specified conditions here given, he contends that there is but one, excessive loss of tissue, which can justify the resort to this unsatisfactory procedure. The number of these desperate cases he thinks is quite small, and may be rendered still less by attention to the proper preliminary treatment. Indeed, he asserts

most positively, that an immensely large proportion of what are commonly considered desperate cases may be cured by the button-suture *without involving the loss of the generative function*, if suitable attention be paid to the condition of the parts before operation. This he proves, not only by reference to the cases upon which he has operated in this country, many of which were published in this Journal, but by the results of operations which he executed in Heidelberg, Vienna and Paris.

It appears from these publications that, convinced of the truth of his opinions, our author went to Heidelberg, in 1874, to witness the operations of Prof. Gustave Simon, and to ascertain, if possible, by personal examination, the grounds upon which the great German master resorted so often to kolpokleisis. Prof. Simon received him most courteously, and not only permitted him to inspect his cases, but placed in his hands for operation several cases which had been consigned by the former to his favorite procedure of closing the vagina. The cases are here detailed, and should, it appears to us, convince any unprejudiced reader of the rare necessity of a resort to the latter operation. It is true that Prof. Simon, who died a few months afterwards, was not fully satisfied, but was evidently much surprised at the success of his worthy visitor.

From Heidelberg Dr. Bozeman went to Vienna, where he was received with the same cordiality as at Heidelberg, and four cases in the great Central Hospital were placed in his hands by Prof. Karl Braun, of the University of Vienna. Three of these cases had been pronounced incurable, and would have been dismissed or consigned to kolpokleisis, but under Dr. Bozeman's preliminary treatment and subsequent application of the button suture, they were all completely cured without the loss of the generative function. The histories of these four cases were published in full in the *Wiener Medizinische Wochenschrift* by Dr. Ludwig Bandl, Surgeon, Clinical Assistant, etc., who also presents us with the following brief account of the preliminary treatment upon which so much stress is justly laid.

The beginning of the procedure is, to pay attention to excoriations and abrasions of the vagina and of the external genital organs. He cuts off the hair found in the posterior vaginal angle, which is usually encrusted with deposits of urinary salts, greatly irritating the excoriated surfaces and causing great distress to the patient. After this is carefully done, a solution of

argenti nitras ʒi to ℥i of water (grms. 4 to water, grms. 16) is applied to all the abraded points inside and outside the vagina. By these means the woman is freed from pain, and soon her confidence is gained, which is absolutely necessary; especially if the treatment is to be protracted. At the same time during the first examination resisting cicatricial bands are divided and the vagina dilated as far as possible with the fingers. After this, dilators of gradually-increased sizes are kept constantly in the vagina. The latter consist of balls and cylinders of hard rubber. Seven-eighths of these, increasing in size from three-tenths to five-tenths millimetre, are sufficient for most cases. Both balls and cylinders are perforated near the surface or end, and a string is passed through, tied in a loop to facilitate removal from the vagina. According to the vaginal dimensions, therefore, a cylinder is inserted and allowed to remain from ten to twelve hours. It is then withdrawn and the vagina flushed thoroughly with tepid or cold water, or the woman is placed into a hip-bath to recover from this first proceeding. Already after three or four days one is surprised at the effect produced by this treatment; the hard dilator, firmly encircled everywhere by the surrounding walls of the vagina, softens the tissues; cicatricial bands, heretofore unperceived, are recognized; and last, but not least, the bladder, which had previously projected outside the vulva in consequence of the great deficiency existing in the posterior vesical wall, is now found to have resumed its proper place, when the patient is placed in the knee-elbow position. Superficial incisions are afterwards made whenever any resistance is found in the vagina and is likely to cause obstruction, and a dilator of larger size, either ball or cylinder, is introduced. The woman soon becomes accustomed to this procedure; she even bears it gladly, for she is enabled now to remain in bed for hours in a dry condition. While thus treated she can easily attend to her household duties if she chooses, and also enjoy comfortable nights. After persisting in this course from three to five days, or even a longer time, the vagina, previously hardened and stiffened by cicatricial tissue, becomes soft and enlarged, while the edges of the fistule are clearly visible.

Only an eye-witness, who has seen this preparatory treatment and been present at the operation itself, is able to appreciate the great importance of this systematic dilation for the purpose of obtaining a perfect and clear knowledge of even the most complicated cases, although it can be partially understood even by the report of the four cases made at the end of this article. Cases II and IV especially prove the remarkable success of systematic dilatation; for by this method alone was it possible to effect a cure and preserve the natural functions of the organs involved, while otherwise it would have been necessary to sew the uterus into the bladder or to make diagonal or transverse obliteration of the vagina (kolpokleisis). For in the second case it required three weeks of preparatory treatment to render

the upper border of the fistule sufficiently movable to get the two edges together. In the fourth case many weeks of careful and painstaking preparation were required, until it could be ascertained that it was possible to unite the fistulous edges, and thus avoid the usual expedient of enclosing the uterus in the bladder.

From my experience concerning cases prepared in this manner, previous to the operation, I am convinced that the systematic dilatation of the vagina increases the chances for a successful operation, in whatever manner it may be performed, whether the edges are freshened and united after Simon's or Sims' method. Professor von Braun also highly appreciates the great advantages of this preparatory treatment, and has adopted the entire method for his operations.

Since then Dr. Bandl, convinced of the great superiority of Dr. Bozeman's method, has followed in his footsteps, and in the last named of the three pamphlets mentioned above gives the results of operations upon seventeen cases in his own practice. The detailed account of these cases is preceded by an admirable summary of the principal points made in the recent discussion with Professor Simon, from which we make the following extract, translated for us by Dr. F. Loeber.

"Professor Simon, formerly in Heidelberg, wrote at the end of his article entitled 'The Operation of Vesico-Vaginal Fistula; Comparison of Bozeman's Operative Method with that of the author.' 'I have expressed myself so minutely in regard to Bozeman's operative method, because in reality the largest majority of fistulæ can be cured by that method, so that this method may be allowed to compete with the two others which are in general use, viz., the Sims–Emmett and my own.'

"After such an expression and from such a source, it seems to me proper to ask from my coöperators further attention and closer examination of Bozeman's operation for vesico-vaginal fistula.

"Simon wrote further: 'I myself have gained that out of the collection of cases, especially from those operated on in Vienna, that I esteem the progressive preparatory treatment higher than formerly, and believe that I have to recommend it very emphatically to inexperienced colleagues.'

"None of the readers can deny, since I have given these *end* quotations from Simon's article, that it contains a perfect recognition of Bozeman's principles, viz., to make the fistulous bor-

ders as accessible and movable as possible by preparatory treatment, before any attempt at operation is made. Bozeman, himself, could be satisfied with these expressions of a master mind equal to himself, if they had appeared in an early part of his article. The recognition expressed at the end was unhappily overlooked by a great many colleagues, or not understood and therefore not recognized, and a great many dissenting verdicts, verbally and literally, were the consequence of the misplacement of the sentences representing the method. Beginners in the operation of vesico vaginal fistula are only too many, and every one who performs the operation for the first time is inexperienced; and for all beginners, Simon's urgent recommendation is for them to practice the preparatory treatment of the vagina as it is done by Bozeman, and on which I myself, in describing the method of Bozeman, lay particular stress. More than to take to heart this recommendation is not necessary to help the good cause of Bozeman ultimately to victory. Then, it is my conviction, will the apprenticeship be shortened and the mastership more easily attained. If the commencer has once learned to appreciate the value of this method in cases which offer only moderate difficulties in putting into right position and easy approximation the edges of the fistula, he will never leave it, and will learn to appreciate its value in difficult cases, and ultimately will arrive at the conclusion that only by this method even the most difficult cases can be cured surely, permanently, and, mostly, without the inclusion of the uterus into the bladder.

"After I had published my article referring to this subject in this journal, a great many women, suffering mostly with very large defects of the bladder, came to the clinic. Prof. Karl von Braun kindly turned these over to me. In this number were the most difficult cases in regard to preparatory and operative treatment, yet I have had the good fortune, in the short time of fifteen months, to relieve fifteen women lying in his department and two from other wards.

"For the beginner it will be encouraging, and for the specialist interesting, that I describe the procedure of the treatment in general, and the result of the operation in each particular case.

"I give particular attention to Bozeman's principles, viz., the gradual enlargement of the vagina and increasing the mobility of the edges of the fistula. In some few cases preparatory treatment was hardly necessary (case 5–8–11): when it was neces-

sary, it was achieved in many cases easily and in a short time; in others, again, we gained our results only after long and tedious preparation. And in these cases Bozeman's expression finds its true value—'not the operation but the preparation is difficult.'

"In the principles I adhered strictly to the operative method of Bozeman. I used Bozeman's operative table in nearly all cases, and in this manner I succeeded, without much assistance, in performing the most difficult operations. Twice I operated according to Simon's method, patient on her back. In most of the operations Dr. Riedinger was the only assistant, one or the other colleagues accidentally present kept the wound clean from blood by small pieces of sponge held in long dressing forceps, and my nurse handed us the different instruments very dextrously.

"In regard to bringing the defects into view, as I have already said in my first article, the third blade of Bozeman's speculum, that belonging to the perinæum, does not answer its purpose fully, but I have found in the combination of the Sims–Simon spoon and Bozeman's Speculum a very serviceable instrument to bring the defects into perfect view during the operation. The first one replaces the third blade of Bozeman's speculum in a very practical manner, since during the operation different pressure and different direction of the spoon-speculum is required, and Bozeman's speculum, not necessitating assistants, is certainly better than the side-levers of Simon. I can therefore emphatically recommend this combination.

"In larger defects, wherein the patient inverted the bladder by bearing down, I found deep narcosis absolutely necessary. Several small defects I closed without chloroform. In two cases asphyxia happened, and only by recognizing it at the right time did we succeed in rescuing our patients, by applying artificial respiration for a considerable time.

"The freshening of the edges of the fistula I made according as I thought advisable, after Bozeman's or Sims' method, or after Wilms, paring flatly. I found that it does not matter much if we cut less perpendicularly or transverse. The principle is, that in refreshening the edges the whole vesico-vaginal septum should be equally divided. A bad result pretty nearly always follows if we only pare away the vaginal mucous membrane. Sometimes healing takes place even under these conditions, but since in the bladder a diverticulum is formed at the

site of the ununited borders, incrustations form which produce rupture of the weakly united vaginal walls.

"The suture of Bozeman I kept unaltered, since I had gained great confidence in it by frequent and successful use. Only once when I had to operate, on account of the magnitude of the defect and the weakness of the patient, at different times I united one corner of the defect with perfect success with Sims' suture. In several other cases I also used in small remaining openings the suture of Simon. The after treatment I conducted strictly on the principles laid down by Bozeman, in cases where I had united large defects; after operations on smaller defects, I left the function of the bladder according to the procedure of Simon."

Personal Appearance and the Culture of Beauty. By T. S. Sozinsky, M.D., Ph.D. Allen, Lane & Scott, Philadelphia. Eyrich, New Orleans.

We are justifiable in speaking well of this little book. It is read with pleasure. The author handles the subject with grace and elegance, and in a physiological manner. The style is terse and flowing, its diction good. It leads the mind in harmonious and pleasurable thoughts, through circles of beauty and taste. Its classical allusions are chaste and apt; in fact, beauty is its substance as well as subject. We recommend it to the lover of the beautiful. A. R. G.

EDITORIAL.

Sanitary Legislation.

The general movement on the part of legislative assemblies in the United States, looking to the protection of public health by statutory enactments, is a matter of earnest interest, as well as gratification to the medical profession. If the primary, or indeed, only object of governments is to protect those who subscribe to them, in the fullest and most undisturbed enjoyment of life, property and domestic happiness, there can surely be no mode of subserving this intention more important than the conservation of the health of those who are governed.

Our friend, Prof. Chaillé, in an address before the Texas State

Medical Association at its last meeting, made the following remarks:

At present in the United States only sixteen states have a registration of births, deaths and marriages, and only two of these are positively good Not a state in the Union has laws providing for the purity and protection from pollution of the water we drink daily. Not a state in the Union has laws protecting our daily food from adulteration. While eleven states have laws protecting cattle from the Texas cattle disease, only twelve states have laws to protect human beings from yellow fever. Not one has laws for small-pox, cholera, venereal diseases and hydrophobia.

Since these remarks have been made a law constructing a State Board of Health has been promulgated in Kentucky. At present we have no opportunity to learn its precise provisions. Unless its enactment provides for the reëstablishment of a registration law it will not be operative of any tangible benefit. A state board of health which does not include some pretty efficient method of ascertaining how many marriages, births and deaths occur annually within its precincts of jurisdiction, together with the causes of mortality, is certainly as unfortunately circumstanced as a ship off a dangerous coast with neither chart nor compass. Lack of knowledge of the character, or degree of prevalence of diseases which occasion the mortality of given communities, necessarily involves ignorance as to means of prevention or eradication.

Some quite important sanitary bills were offered in the late legislature of this State, but they signally failed. That prudish damsel with the chameleon colored dress, named "Reform," had so many flirtations of a serious nature, that her sister, Hygeia, could never get an audience. By far the most interesting steps toward sanitary legislation are on the part of the National Government. The following telegraphic synopsis relates to action in the United States Senate on the 18th instant.

Mr. Gordon, of Georgia, moved to postpone the pending and all prior orders, and take up the House bill to prevent the introduction of contagious or infectious diseases into the United States. Agreed to and the bill was passed without discussion.

We append to the report of the passage of the bill its full text:

FEDERAL QUARANTINE LAW.

House Bill reported by Mr. Conkling to the Senate.

AN ACT to prevent the introduction of contagious or infectious diseases into the United States.

Be it enacted by the Senate and House of Representatives of the

United States of America in Congress assembled, That no vessel or vehicle coming from any foreign port or country where any contagious or infectious disease may exist, and no vessel or vehicle conveying any person or persons, merchandise, or animals, affected with any infectious or contagious disease, shall enter in any port of the United States or pass the boundary line between the United States and any foreign country, contrary to the quarantine laws of any one of the said United States, into or through the jurisdiction of which said vessel or vehicle may pass, or to which it is destined, or except in the manner and subject to the regulations to be prescribed as hereinafter provided.

SEC. 2. That whenever any infectious or contagious disease shall appear in any foreign port or country, and whenever any vessel shall leave any infected foreign port, or, having on board goods or passengers coming from any place or district infected with cholera or yellow fever, shall leave any foreign port, bound for any port in the United States, the consular officer, or other representative of the United States at or nearest such foreign port, shall immediately give information thereof to the Supervising Surgeon General of the Marine Hospital Service, and shall report to him the name, the date of departure, and the port of destination of said vessel; and shall also make the same report to the health officer of the port of destination in the United States; and the consular officers of the United States shall make weekly reports to him of the sanitary condition of the ports at which they are respectively stationed; and the said Surgeon General of the Marine Hospital Service shall, under the direction of the Secretary of the Treasury, be charged with the execution of the provisions of this act, and shall frame all needful rules and regulations for that purpose, which rules and regulations shall be subject to the approval of the President, but such rules and regulations shall not conflict with or impair any sanitary or quarantine laws or regulations of any State or municipal authorities now existing, or which may hereafter be enacted.

SEC. 3. That it shall be the duty of the medical officers of the Marine Hospital Service, and of customs officers, to aid in the enforcement of the national quarantine rules and regulations established under the preceding section; but no additional compensation shall be allowed said officers by reason of such services as they may be required to perform under this act, except actual and necessary traveling expenses.

SEC. 4. That the Surgeon General of the Marine Hospital Service shall, upon receipt of information of the departure of any vessel, goods, or passengers from infected places to any port in the United States, immediately notify the proper State or municipal and United States officer or officers at the threatened port of destination of the vessel, and shall prepare and transmit to the medical officers of the Marine Hospital Service, to collec-

tors of customs, and to the State and municipal health authorities in the United States, weekly abstracts of the consular sanitary reports and other pertinent information received by him.

SEC. 5. That wherever, at any port of the United States, any State or municipal quarantine system may now, or may hereafter, exist, the officers or agents of such system shall, upon the application of the respective State or municipal authorities, be authorized and empowered to act as officers or agents of the national quarantine system, and shall be clothed with all the powers of United States officers for quarantine purposes, but shall receive no pay or emoluments from the United States. At all other ports where, in the opinion of the Secretary of the Treasury, it shall be deemed necessary to establish quarantine, the medical officers or other agents of the Marine Hospital Service shall perform such duties in the enforcement of the quarantine rules and regulations as may be assigned them by the Surgeon General of that service under this act: *Provided,* that there shall be no interference in any manner with any quarantine laws or regulations as they now exist, or may hereafter be adopted, under State laws.

SEC. 6. That all acts or parts of acts inconsistent with this act be, and the same are hereby repealed.

If the provisions and prohibitions of this bill can be efficiently enforced it becomes at once a safeguard against the introduction of infectious diseases. But its perfect execution in respect to the detection of smugglers of the contagium of disease, involves an amount of knowledge of the causes of disease, acuteness, and experience in surveillance and inspection, very difficult to find combined in one person. According to the bill as reported above, venereal diseases come strictly within provision of the proposed law. It is probable that very few ships arrive at this port with crews and passengers free from these disorders. They are, however, discoverable by close personal inspection. But what process is to be adopted which shall reveal the presence of the yellow fever or cholera germs? Or what shall assure us of their absence? These must, if contained in fomites or in the holds of ships, continue to elude all means of objective demonstration and detection at the present time known to science. In cases where infectious germs escape the observation of the inspecting officer, or in other words, a clean certificate is furnished the master or agent of the vessel, how are the penalties of the law to be put in force when one of its authenticated executors has

furnished written evidence of the innocence of the party charged with its violation?

Whilst these obstacles in the way of the successful execution of the provisions of the bill must be allowed as objections to it, we yet feel justified in placing our names on record among its strenuous advocates. Every day's observation strengthens our conviction that all regulations and laws regarding the importation of disease should proceed from the National Government, and be enforced by its officers. Otherwise we can have no uniformity either in mode of action, or in the territorial limitations of measures taken to exclude disease. Railroad passengers may leave seaboard cities on any part of our coast, and traverse the continent during the incubative period of many infectious diseases. It is therefore necessary that the law should be general, not local, in its operation.

Another compensation likely to accrue from the action of Congress in assuming the control of this whole matter relating to the introduction of diseases, rests upon the possibility that all appointments of the officers who are to be charged with the execution of the law will be taken from men whose attainments and experience recommend them to the functionary charged with its supervision. As an educated member of the medical profession, he is competent to judge of the wants of this important service, and to select as his assistants those who bring ripe knowledge, experience and conscientiousness, to the work they are to perform.

In so far as commercial communities are interested, there can be no more important office than that of the health officers at quarantine stations. Very few of those political rulers whom chance or expediency has invested with powers to appoint these officers, have any conception of the truth of this statement, or if aware of it, they entirely disregard the necessities or welfare of those over whom they hold jurisdiction.

Let us have a national quarantine law, and let the Surgeon-General of the Marine Service administer it.

Ziemssen's Cyclopedia of the Practice of Medicine.

Volumes xiv. and xvii. of this great work have reached us. They will receive a critical notice in our next.

Parish of Orleans Medical Society.

A meeting of medical gentlemen was held on Monday evening, 22d inst., to establish a parish medical society in affiliation with the State Medical Association. The meeting was well attended. The only action taken was the appointment by the temporary chairman, Dr. Logan, of a committee on permanent organization, viz., Drs. Chaillé, Turpin, and Herrick. This committee will report on Monday evening, May 6th, when it is hoped that the objects of the meeting will be successfully accomplished.

Dr. Nathan Bozeman.

We are greatly gratified to learn that Dr. Bozeman has recently been elected one of the Surgeons to the New York State Woman's Hospital, in the place of the late Dr. Peaslee. The position was undoubtedly due to him for his eminent services in the surgery of the female genital organs, but we may possibly be excused for a little extra feeling of pleasure, from the fact that Dr. Bozeman was born and educated among us, and here achieved his first and many of his subsequent triumphs.

Pamphlets Received.

The Blood is the Life. A treatise on Immortality. By Jasper Wheeler, Bath, N. Y.

Scarlatina in Chicago. Particularly the Epidemic of 1876–7. By Charles W. Earle, M.D., Prof. of Diseases Children, Women's Medical College.

The Etiology of Intemperance. By Charles W. Earle, M.D., Physician to the Washington Home. Chicago, Ills.

Cholera of 1873. By W. R. Sevier, M.D. Jonesboro, Tenn.

Is Modern Education exerting an evil influence over the Eye-Sight of our Children? By A. W. Calhoun, M.D., Prof. of Diseases of the Eye and Ear in the Atlanta Medical College, Atlanta, Ga.

Biennial Report of the Mountain Sanitarium for Pulmonary Diseases. By W. Gleitsmann, M.D. Ashville, N. C.

The Yellow Fever at Havana. Its Nature and its Treatment. By Charles Belot, Director of the Hospital. Havana, Cuba.

The Poriscope; a bi-monthly journal, devoted to physical, mental and moral culture. By R. Stoddard Gee, M.D. Dubuque, Iowa.

Medicinal Plants, Indigenous in Michigan. By A. B. Lyons, M.D. Detroit, Mich.

My Experience with Headaches. By Wm. H. Holcome, M.D. New Orleans, La.

American Medical Association.

PHILADELPHIA, 1400 PINE STREET, S. W. corner Broad.

The Twenty-ninth Annual Session will be held in the city of Buffalo, N. Y., on Tuesday, Wednesday, Thursday, and Friday, June 4, 5, 6, and 7, 1878, commencing on Tuesday at 11 a. m.

"The delegates shall receive their appointment from permanently organized State Medical Societies, and such County and District Medical Societies as are recognized by *representation in their respective State Societies*, and from the Medical Department of the Army and Navy of the United States."

"Each State, County, and District Medical Society entitled to representation shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number: *Provided*, however, that the number of delegates for any particular State, territory, county, city, or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the Association."

☞ Secretaries of Medical Societies as above designated are earnestly requested to forward, *at once*, lists of their delegates.

Will you kindly send to the undersigned a list of your members with their residences, in order that a correct record may be made of all who are in affiliation with this body?

It is probable that several railroads will carry delegates to Buffalo and return for one and one-third fare. Such roads as agree so to do will be announced in the Journals.

WM. B. ATKINSON, M.D., *Permanent Secretary.*

NECROLOGY.

DIED.—DR. FLEETWOOD CHURCHILL, long and favorably known as a writer on Midwifery, died at his home in Ireland, January 13th, 1878.

METEOROLOGICAL AND MORTALITY REPORTS.

Meteorological Report for New Orleans—March.

Day of Month.	Temperature.			Mean Barometer Daily.	Relative Humidity—Daily.	Rain fall—Inches
	Maximum.	Minimum.	Range.			
1	71	55	16	30.048	77.	.00
2	76	62	14	29.980	65.	.00
3	67	54	13	30.031	30.3	.00
4	65	49	26	30.221	34.	.00
5	68	46	22	30.264	58.3	.00
6	71	53	18	30.219	68.7	.00
7	75	59	16	30.092	79.3	.24
8	75	61	14	29.955	76.	.31
9	72	66	6	29.759	80.3	2.73
10	69	58	11	29.904	68.	.03
11	74	65	9	29.772	82.3	.00
12	78	59	19	29.842	70.3	.02
13	80	59	2	30 000	60.7	00.
14	81	62	19	30.064	57.	.00
15	78	63	15	30.093	64.7	.00
16	70	61	9	30.055	70.3	.00
17	78	56	22	30.021	59.	.00
18	68	54	14	30.103	63.7	.00
19	70	55	15	30.104	62.7	.00
20	70	61	9	30.021	62.3	.00
21	75	54	6	29.911	56.3	.00
22	77	—	—	30.023	53.	.00
23	79	—	—	29.998	59.	.00
24	77	—	—	29.898	60 3	.00
25	73	—	—	29.943	62.7	.00
26	78	—	—	29.883	74.	.00
27	76	—	—	29.664	86.7	.00
28	82	—	—	29.785	62.3	.00
29	77	—	—	29.861	72.7	.00
30	78	—	—	29.934	85.3	.05
31	76	62	14	29.888	76.7	.74
Mean..	00.0	00.0	00.0	00.000	00.0	Total. 4.12

Mortality in New Orleans from March 25th, 1878, to April 21st, 1878, inclusive.

Week Ending	Yellow Fever.	Malarial Fevers.	Consumption.	Small-Pox.	Pneumonia.	Total Mortality.
March 31.....	0	3	17	10	8	115
April 7.....	0	4	23	8	13	123
April 14.....	0	7	17	9	8	116
April 21.....	0	6	16	10	7	120
Totals.....	0	20	73	37	36	474

Board of Health, State of Louisiana.

SAMUEL CHOPPIN, M.D., *President.*
B. F. TAYLOR, M.D., *Secretary.*

W. G. Austin, M.D.,
F. Loeber, M.D.,
G. W. Nott, Esq.,
Col. T. S. Hardee,
F. Taney, M.D.,
Joseph Jones, M.D.,
Samuel Boyd, Esq.,
J. Albrecht, M.D.

THE

NEW ORLEANS

MEDICAL AND SURGICAL JOURNAL.

JUNE, 1878.

ORIGINAL COMMUNICATIONS.

HISTORY OF THE LAWS REGULATING THE PRACTICE OF MEDICINE, ETC., IN LOUISIANA, 1808 TO 1878.

BY STANFORD E. CHAILLÉ, A.M., M.D.,

Professor of Physiology and Pathological Anatomy, Medical Department, University of Louisiana.

All reputable physicians, even the transgressing professors of medical colleges, deplore the facility with which medical diplomas are obtained, and the condition of medical education in the United States. The belief is apparently general in the profession, that laws can and should rectify our evils; and in those states destitute of laws to regulate the practice of medicine, there seems to be a strong desire to organize efforts to have such laws enacted.

At the recent session of the Louisiana Medical Association, one of its members, advanced in years, referred to the "good old times" from 1808 to 1852, when Louisiana was blessed with such laws; describing, from his own experience in the "Western District," a professional Arcadia, wherein there were no patent medicines to corrupt, nor quack doctors to break through the health and steal the money of fortunate patients. The general desire for some legislative action was so decided that it was "Resolved, That a committee of five* be appointed, whose duty

* The published proceedings erroneously report "Dr. Chaille" as one of this committee. I was appointed by the President, who, however, at my request relieved me from this duty, appointing some other member, whose name I have forgotten, in my place.

it shall be to draw up a petition to the Legisiature to reëstablish examining boards," which, "on Dr. Chaillé's motion," was so amended as to read "whose duty it shall be *to consider the propriety* of petitioning the legislature to reëstablish examining boards" The reason which prompted me to move this amendment will abundantly appear in the following history, which will, I believe, prove instructive to all physicians in every state as well as in Louisiana, who are at all interested in the subject of laws regulating the practice of medicine. First, the laws will be stated; second, *the results* of these laws.

Orleans Territory, purchased from France in 1803, was admitted as the State of Louisiana in 1812. March 23d, 1808, the following law was approved: "Be it enacted by the Legislative Council and House of Representatives of the Territory of Orleans in General Assembly convened, That no person shall presume to practice medicine, without *first* exhibiting satisfactory proof of his having qualified himself as such by previous studies, which shall be made to appear by a diploma of any University or School in which he may have pursued his studies. The candidate shall exhibit said diploma to the Mayor of the City of New Orleans, who shall *then* fix on a day, and shall appoint four physicians or surgeons from among the oldest practitioners, whose duty it shall be publicly to examine the candidate, and to give him a certificate of admission, if he should be admitted; which certificate shall be signed by the four examiners, and by the Mayor who shall cause the seal of the city to be affixed to the same."

March 16th, 1816, an act was approved* which repealed the law of 1808, and its provisions may be summarized as follows: It required that *apothecaries* should undergo an examination as well as physicians; that the Governor should appoint four physicians and one apothecary to compose the Medical Examining Board for the whole state; that every practising physician and apothecary in the state (except those whose certificates under the law of 1808 were recorded in the clerk's office of the parish in which they practiced) should petition the Mayor of New Orleans for examination, who, summoning the Medical Board, should have the applicant examined in the presence of himself and of two aldermen, and if the examination proved satisfactory

* See pp. 84–86, Acts of 1816.

to a majority of the Board, should give a certificate; that any violator of this law should incur for the first offense a fine not exceeding $100, and for the second offense $200, with imprisonment not exceeding one year; that it should be the duty of the Attorney General to prosecute all offenders; and that these laws should apply to all persons except to "any inhabitant or planter in the country, who on the application of any of his sick neighbors should procure them some alleviation, or administer them any kind of physic."

February 18th, 1817, "an act supplementary to the act of 1816" was approved* which modified the previous law as follows: *Two* Medical Examining Boards (for the two judicial districts of the Supreme Court) were established—one for the Eastern District, to hold sessions in New Orleans, and to be composed of five members, "commissioned by the governor with the advice and consent of the senate;" the second board for the Western District, to hold sessions at Opelousas, and at Alexandria, and to be composed of six members; no person should be a member of the Boards unless he himself had secured a legal certificate; the apothecary-member should examine only apothecaries; three should be a quorum of a Board, and a majority was required to grant a certificate; each Board should elect its president and clerk from its own members, and should collect $20 for each certificate granted; the powers of each Board should be limited to its special district, but a certificate from either board should be valid throughout the state; all physicians of ten years' practice in the state, antecedent to the act of 1816, were permitted to practice "without being obliged to obtain a license, as required for other physicians by the laws of the state."

March 1st, 1820, "an act, supplementary to the acts of 1816 and 1817." was approved,† providing as follows: that the provision of the law requiring applicants to be examined in presence of the mayor and two aldermen was repealed; that the Board for the Eastern District should consist of six members [instead of five], five physicians and one apothecary; that "any applicant who may have been graduated, or may have obtained a diploma of doctor of medicine in any of the colleges or universities of the United States, shall, on producing the same with satisfactory

* See pp. 90–94, Acts of 1817.

† See pp. 30–2, Acts of 1820.

evidence of good moral character to either of the Boards, be admitted to practice medicine within this state;" that whenever the President of a Board had knowledge of any violation of the laws as to physicians and apothecaries, it should be his duty to inform the Attorney General, "who *shall be bound to prosecute* such persons for the amount of the fines and forfeitures of the law."

March 27th, 1840, "Act No. 91, Relative to the Medical Board of the Eastern District of the State of Louisiana" was approved,* and the chief alterations it effected were as follows: It was provided, that the Medical Board of the Eastern District should consist of six physicians and two apothecaries; that every individual who intended to practice in this state as a physician, apothecary, or *midwife*, should deposit with the Secretary of the Board a diploma, and thereafter be examined by the Medical Board, four members of which should constitute a quorum; that no graduates should be permitted to practice medicine, etc., unless authorized by the Board, *except graduates of the Medical College of Louisiana*;† that any candidate rejected by the Board should have the right to claim *a public examination;* that all violators of this law should, for the first offense, be liable to a fine not exceeding $100, and for the second offense to a fine not less than $200, nor more than $500.

These four Acts of 1816, 1817, 1820, and 1840, were the laws which prevailed for the twelve years from March 27th, 1840, until March 10th, 1852, and their various provisions are found codified as follows in the

"Revised Statutes of the State of Louisiana, February 5th, 1852.

"*Physicians and Apothecaries.*

"1. No person shall have the right to practice physic, surgery, midwifery or the profession of apothecary in any part of the State of Louisiana, without having previously undergone an examination, and obtained a certificate, which shall be delivered to him by a medical board, in the manner hereafter prescribed, unless the degree of doctor of medicine shall have been previously conferred on him by the University of Louisiana. [1816, 84–1; 1817, 92–4; 1840, 100–3–5; 1847, 41–9.]

* See pp. 99–101, Acts of 1840.

† The "Medical College of Louisiana" was organized September, 1834, and was converted by law, February 15th, 1847, into the present "Medical Department of the University of Louisiana."

"2. The medical board shall be composed of six physicians and two apothecaries, and shall hold its sessions in the city of New Orleans. The members of the said board, as at present organized, shall constitute the said board. [1817, 90-1-2.]

"3. Four of the members of the board shall constitute a quorum to do business, and all vacancies occurring hereafter therein shall be filled by a commission from the governor (with the advice and consent of the senate), as members of the Medical Board for the State of Louisiana; Provided, however, that no member shall be appointed who has not obtained a certificate to practice physic and surgery, or the profession of apothecary under some law of this state; Provided that the apothecaries making part of the board shall only take part in the examination of apothecaries to be licensed by authority of law. [1840, 100-2.]

"4. The members of the board shall choose from among their own number a president, who shall preside at their respective meetings. They shall also appoint a clerk, who shall keep a correct journal of all the proceedings of the board, which shall contain a registry of the names of the different applicants they may have admitted to the practice of physic and surgery, of midwifery, or of the profession of apothecary; and the majority of the board agreeing to the admission of an applicant after his examination, shall be authorized to issue a certificate of such examination and admission. [1817, 92-3; 1820, 30-3-4; 1840-99-100.]

"5 Every individual who shall intend to practice the profession of physician, apothecary, or of midwifery, within this state, shall present to, and deposit with the Secretary of the Medical Board, a diploma, obtained from a board of physicians, or a legally instituted medical college, or in lieu thereof, satisfactory evidence that he has been possessed of such a diploma, of which he has been deprived by some unavoidable cause; it shall then be the duty of the secretary to assemble the Medical Board. [1840, 100-2.]

"6. A candidate who shall have graduated in any other than the Medical College of Louisiana, shall not be permitted to practice the profession of a physician, an apothecary, or of midwifery, unless said person shall previously have established to the satisfaction of the Medical Board, either by a formal examination, or by a scientific conversation, that he is entitled to his diploma; and whenever the majority of said board shall acknowledge said candidate to be possessed of all the information and moral qualities required by the branch of the profession for which he applied, they shall deliver to said candidate a license designating on which of the three branches of the profession he was examined, and said board shall have a right to demand and receive from said candidate at the time of the delivery of said license the sum of twenty dollars, if the application be to prac-

tice as a physician or apothecary, and the sum of ten dollars, if to practice midwifery, which sum (after the expenses of the board have been deducted) shall annually be paid over to the Treasurer of the Charity Hospital, to be appropriated to the use of said hospital; and any candidate, who agreeably to the preceding section, shall have been admitted to an examination on the exhibition only of a certificate testifying the loss of his diploma, shall receive only a temporary license, to have effect only during the time that may be necessary to obtain from the medical board or college of which he is a graduate another diploma, or an equivalent document; and the said time shall not exceed three months when said candidate shall have graduated in America, or six months if he has graduated in Europe. [1840, 100-3.]

"7. Any candidate who shall have been rejected, shall have a right to claim a public examination, by the same members of the board who rejected him; and notice of said examination shall be published three successive days in English and French in one or more gazettes of the state. [1840, 100-4.]

"8. It shall be the duty of every individual who shall receive a license from the said board to practice the profession of a physician, an apothecary, or of midwifery, to cause the said license to be recorded, in the clerk's office of the parish in which he shall exercise his profession, in order to apply to it in case it should be necessary; Provided always that every individual now practising physic, or the profession of apothecary, and having complied with the formalities required by previous laws concerning physicians, surgeons and apothecaries, shall be authorized to continue the exercise of his profession, after having caused to be recorded in the clerk's office of the parish in which he practices, the certificate which the said laws required him to obtain. [1816, 84-3.]

"9. Every person who shall practice in the State of Louisiana the profession of a physician, an apothecary, or that of midwifery, without a special license granted by the Medical Board, or a diploma from the University of Louisiana, conferring the degree of doctor of medicine, shall be liable to a fine that shall not exceed the sum of one hundred dollars for the first offense, and for the second offense, such person shall be fined in a sum that shall not be less than two hundred and not more than five hundred dollars, recoverable by said Medical Board, or by any person before any court of competent jurisdiction in this state; and said fines, after deducting the fees of counsel for prosecuting, to be taxed by the court before which suit is brought, shall be paid by the clerk of said court to the Treasurer of the Charity Hospital. [1840, 101-5; 1845, 99-100.]

"10. Nothing herein contained shall be so construed as to prevent any person residing out of New Orleans, from selling medicine which shall have been purchased from any legal apothe-

cary, and which shall have been plainly labelled by said apothecary; or to apply to any inhabitant or planter in the country, who on the application of any of his sick neighbors should render them assistance or administer remedies to them" [1820, 30–5; 1816, 86–4.]

The laws, now stated in full, which regulated the qualifications of physicians, of apothecaries, and of midwives in Louisiana, seem to me (not a lawyer) as wise, stringent, and satisfactory as could be demanded by the medical profession. So far as the provisions of these laws are concerned, I believe them to have been as *efficient in language* as have ever been enacted in any of the states. They were repealed by the influence, as was publicly reported at the time (a report which I never heard disputed), of the notorious "cancer doctor, Dr. Gilbert," who, as was alleged, visited the capitol at Baton Rouge, and there judiciously administered champagne, oyster suppers, and similar seductions, such as experience has proved to be persuasive with the ordinary American legislator.

The repealing law was Act No. 136, approved March 10th, 1852,* and reads as follows:

AN ACT,

In reference to Medical Practitioners.

SECTION 1. Any person or persons having an authentic and genuine diploma from *any chartered medical college* or *society* in the United States, whether the same *be allopathic or otherwise*, shall be and are hereby allowed to practice medicine, surgery, or midwifery in this state, without having to procure any further license; and may charge, demand and receive for their visits, medicines, prescriptions, and medical services, the fees usually paid for similar services in the district or locality where said services may be rendered.

SEC. 2. All laws and parts of laws contrary to this act be and the same are hereby repealed, and this act to take effect from and after its passage.

Before proceeding to state the further history, and the present condition of our laws, I will halt to present the operation and results of the apparently wise and efficient Acts which governed this state from 1808 to 1852, and especially of those given in full as in operation during the twelve years from 1840 to 1852. In

* See p. 193 Acts of 1852; also Act No. 256 of 1855; also the "Revised Statutes, 1856."

1844 was established the "New Orleans Medical and Surgical Journal," the first of its kind in the State, and the only source from which trustworthy evidence in this matter can be obtained. From the pages of this Journal is derived the following emphatic and most instructive evidence,* which tends to prove that, while a charlatan cancer doctor may have been, in 1852, the immediate cause of, other causes more radical had been constantly tending to bring about, the repeal of our apparently excellent laws.

In the very first number of the Journal (pp. 82–3, vol. i.), July, 1844, the honored editors, Drs. Fenner and Hester, reported as follows: "In a republican government like ours, where every man claims the right, and generally exercises it, too, to follow any occupation or profession most congenial to his own feelings, or best calculated to 'put money in his purse' without regard to, or even in defiance of all legislative enactments—we must expect them to resist every restriction which may tend to interfere with this high prerogative, or to confine them to their legitimate business or avocations. To this propensity almost instinct, inherent in the American mind, the public, for whose health and well-being these laws were enacted, lends its patronage and powerful influence. Hence the evil, against which the law was levelled, has been only partially corrected; the spirit and even the letter of the law has been violated or evaded under various pretences, and we now see established in every quarter of our city those who are not enrolled on the ad eundem list, and who nevertheless practice every branch of the profession, and that, too, without molestation or restriction. These soi-distant followers of Machaon are violating the laws of the state from day to day—and our Medical Board of Examiners either connive at this open public infringement upon the dignity and respectability of the medical profession, and positive violation of our statutes, or neglect to discharge an importaat and solemn duty to the public. In either event, the consequences are most disastrous to the profession, and highly detrimental to the public welfare." * * *

"If the board is not more efficient for the future, *than it has been during the past, let the legislature repeal the law, and abolish the board.* As it now stands, its force is expended alone on the

* All unspecified references in this article are to the N. O. Medical and Surgical Journal.

worthy and deserving members of the profession, who, prompted by just motives of pride, come before the board in obedience to the dictates of their own feelings, and in order to conform, like every good citizen, to the laws of the state."

The above extracts justify the suspicion that the governor of the state had, "with the advice and consent of the senate," exercised most injudiciously the power to appoint the members of the board. But investigation proves that this suspicion would be most unjust; for I find that in 1840, the six physicians of the Eastern Board were Drs. Barton and Jones, Professors in the Medical College of Louisiana, Drs. Labatut, Lambert, Rice, and Fortier. I have no recollection of the last two, but do know that no physicians in this state deserved or enjoyed higher reputation than the first four. The board of 1847, and probably of several subsequent years, was composed of six of the most famous and honored physicians in this city, viz., Professors Warren Stone, Thomas Hunt, and John Harrison, M.D., and Drs. Labatut, Landreaux, and J. Hampden Lewis who still lives beloved and respected by all who know him. Manifestly, if boards thus constituted failed to secure the results expected, then no board, however constituted, would prove efficient. The members of the Western Board were also of unquestionably good repute.

In the March No., 1846 (pp. 688-690, vol. ii.), the editors, who then were Drs. Fenner and Hester together with Professors Carpenter and Harrison, published a letter in reference to the "Western Board," preceding this with editorial comments as to both boards. The indignant correspondent, "J. B. D.," testified to the following among other facts. "Physicians settling in this part of the state encounter great difficulty in procuring their licences to practice medicine from the Board of Examining Physicians in the Western District. This board is constituted of physicians residing at a distance from each other, and it is almost impossible ever to get a sufficient number of them together to form a quorum to grant licenses, conformably with the law of the state. This difficulty is made an excuse by physicians for not complying with the law, and they *here practice their profession with impunity in open violation of the law.* I have conversed with many physicians in this section of the state, and *all agree*, even the members themselves of the board, that this Western Board is perfectly useless, nay, a positive injury, and should be abolished;

and that we should have but one board in the State, and that at New Orleans. *Not one physician in fifty residing in the Western District has complied with the law*," etc., etc. "This subject ought to be brought before the legislature immediately; the Western Board ought to be abolished, and in every parish *one or two* medical men should be appointed *whose duty* it shall be to present to the grand juries of the several courts the names of all physicians who practice medicine in violation of the law."*

The above named editors thus commented on this letter:

"In regard to the abolition of the Western Board of Medical Examiners, the remarks of our correspondent are doubtless well grounded, and his suggestions may be very good; but we will take occasion to express our regret at *the negligence of the entire body.* In this state we have already on our statute books good laws for the regulation and protection of the profession, yet from the supineness of the medical boards, they remain virtually *a dead letter.* Throughout the state—even in this city, under the very eyes of the Eastern Board—scores of physicians and druggists are pursuing the profession contrary to law." [I beg permission to interrupt this extract, urging the reader to remember that the above was written in 1846, and that one of these very denunciatory editors, Prof. John Harrison, M.D., became a member, in 1847, of the much abused Eastern Board.] "In short, the operation of the law at present only seems to impose a tax of twenty dollars on such gentlemen as have too much pride to practice without obtaining license. Thus a burden is imposed upon such as would do honor to the profession and the state, while quacks and impostors are permitted to carry on unmolested their unholy and outrageous traffic in human life. This evil cries aloud for reform; and *if public sentiment will not sustain* the better part of the medical profession in the discharge of the high responsibilities that devolve upon them, we hesitate not to say that *the laws regulating the profession had as well be repealed.*"

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* In 1847 was published a pamphlet containing the excellent "By-Laws of the Medical Board of Louisiana for the Eastern District." "Sec. 6, Art. 14," reads, "That this Board will every year at its first meeting in January appoint a committee of Physicans in each parish of its District (and recommends the Western Board to do the same in its District), whose duty shall be to co-operate with this Board in enforcing compliance in their respective parishes with the requisites of the law."

In September, 1846 (p. 277, vol. iii.), the editors above named stated among other things, "We are pleased to discover that the Eastern Board is at last awakened to a sense of its duties, and is determined to have the laws for the regulation of the medical profession carried into full effect. They have published in the city newspapers the names of all the licensed physicians [194], apothecaries [50], and midwives [12] they have upon their books,* and have given notice that all persons acting in contravention of the law, who do not come forward within thirty days and comply with its requisitions, will be prosecuted with the utmost rigor. This is perfectly right; the law should be either enforced or *repealed.*" "There are doubtless a great many now practicing in the Eastern District contrary to law. We are informed that a number of suits have been commenced, and will be prosecuted with vigor. We hear nothing of the Western Board, except occasionally of an individual who has gone before it and readily obtained license, *after having failed or been deterred from coming* before the Eastern Board." The editors also urged that the law should be amended, and a medical convention called to consider, "1st, the addition of *imprisonment*† to the penalties of the present law; 2d, the abolition of the Western Board; 3d, the repeal of the odious tax upon practicing physicians; and 4th, the formation of a state medical society."

In July, 1848, the editors, *Prof. John Harrison*, M.D., and Dr. Hester,‡ stated (pp. 126–7, vol. v.): "As a general rule, those only who feel and know that they are incompetent to practice the profession of medicine, *refuse* to come forward and pass the ordeal of the board." "We need scarcely say that not one of the above resolutions [referring to certain wise by-laws of the board], to our knowledge, has been carried into effect, the consequence of which is that the community is imposed upon, and drugged by vendors of patent medicines to an extent almost incredible." As the law bears hardly [examination and tax] upon the proud and educated gentlemen of the profession, and per-

* The published "List of Licentiates of the Medical Board of the Eastern District of Louisiana *to December 20th*, 1847," details the names of 627 physicians, 115 apothecaries, 37 midwives, and 5 dentists.

† Imprisonment was the penalty of a second violation of the law of 1816, and so continued until 1840.

‡ Dr. Hester became a member of the Eastern Board in 1849 (see p. 142, vol. vi).

mits the servile and ignorant impostors to go 'unwhipped of justice,' we think, from its unequal and unjust operation, *it should be altogether abolished*," etc.

In May, 1851, Dr. Hester, editor and ex-member of the Eastern Board, wrote (pp. 808–811, vol. vii.): "It has been urged that the license law, as it now stands, confers no benefit nor yields any protection whatever. We *confess that this is too true.*" "The suppression of this wholesale quackery and charlatanism, *as it now exists*, we are fearful cannot be accomplished. We very much question the probability of our obtaining any legislative redress whatever for our grievances. The public, whose judgments are difficult to convince in opposition to their preconceived notions, or no notions whatever—or we might say superstitious reverence for ignorant pretensions and the marvelous—would never consent to the enactment of a penal statute for the protection of this or any other science." "We must acknowledge, with regret, that legislative enactment, *even if it can be procured, will be of but little use.*"

Such is the evidence of the inefficiency of seemingly most excellent laws, evidence derived from columns edited by distinguished members of the profession, several of whom had served on the Medical Examining Board charged with the execution of these laws.

Some testimony will now be presented from even a higher source—the Louisiana State Medical Society, which was organized in 1849. At its Second Annual Session, March 15th, 1851, Dr. Wm. P. Hort, as chairman of a committee on "Medical Education and the License Law," made a very valuable report (pp. 314–327, vol. viii.), from which the following quotations are extracted. "The *Boston Medical and Surgical Journal* made a statement in 1850 [or 1851], from which it appears that laws regulating the practice of medicine are in existence in only three* states—New Jersey, Louisiana, and Michigan, and in the District of Columbia. In twelve states—Maine, Vermont, Connecticut, N. York, Maryland, Delaware, South Carolina, Georgia, Alabama,* Mississippi, Indiana, and Ohio—salutary laws that were once

* Alabama is erroneously classed in the above list; it passed laws January 15th, 1830, and at the session of 1841–2 establishing medical boards to determine the qualifications of physicians and apothecaries, etc. These laws, though found inefficient, *had not been repealed in* 1851. See pp, 98–102, vol. i., and p. 537, vol. viii.

enacted and enforced *have been repealed*, and the field is open to one and to all. And in the fourteen following states—N. Hampshire, Massachusetts, Rhode Island, Pennsylvania, Virginia, North Carolina, Tennessee, Kentucky, Illinois, Missouri, Wisconsin, Iowa, Arkansas, Texas—it appears that no laws regulating the practice of medicine have ever been enacted." "The opinion of the committee is that there is no legislation on the subject in Florida and California."

The chairman of the committee comments on the satisfaction, with the Louisiana laws, of the above Boston editor, who had affirmed that "no state in the Union is better protected against impositions of all kinds than Louisiana." Dr. Hort replies: "This city and state are overrun with irregular practitioners *just as much* as though no law on the subject existed on the Statute Book. We would not cast the slightest imputation on the persons constituting the Board of Medical Examiners. But they cannot contend against *public opinion*." "We wish to be plain on this subject, and particularly so, as, when the legislature was last in session, an attempt was made to induce that body to make the existing and almost obsolete laws still more stringent. But, if the laws at present in force are not sufficient to afford protection and suppress imposition—laws which are considered *the best* for such purposes *of any State in the Union*—the same public opinion, which now renders them inoperative, would be roused to firmer decision and stronger opposition against the more stringent law." "We may appeal to the legislature for more stringent laws, and more effectual protection; should we succeed in persuading the legislature, which is exceedingly doubtful, still, that *will not carry public opinion with us. And all such laws, enacted in opposition to public opinion, ever have remained and ever will remain dead letters on the Statute Book.*" Finally, Dr. Hort writes: "Attorneys, after receiving a fee, have neglected to do their duty; and members of the Board of Examiners have stated that the law could not be enforced, because the empirics constituted too strong an opposition." "If the law can not be enforced because lawyers cannot be induced to sue; and if it is the deliberate opinion of members of the board that it is *impolitic to enforce the law*, then we must say that strict justice, propriety, and expediency should induce the members of the board to resign at once; and that it should be recommended to the next legislature *to repeal the law*, and *abolish* both Medical Ex-

amining Boards. There is nothing fair in the present system, and *the sooner it is got rid of the better.*"

As has been stated, the system was most effectually gotten rid of by the law of March 10th, 1852. Immediately thereafter, April 5th, 1852, "G. L. Browning, Recording Secretary of the Louisiana State Medical Society," did in his official report denounce the laws, which had been repealed, as a "feeble barrier," and "certainly, to a great extent, inoperative" (p. 814, vol. viii.).

The officers of the Louisiana State Medical Society issued, March, 1853, a "Circular to the Medical Profession of Louisiana," urging attendance at the approaching annual session, and do therein accidentally refer to the "repeal of the License Law," as an "*injudicious measure*" (p. 708, vol. ix.). After diligent search, this public protest against the repeal of these laws is *the only one*, which I have found, emanating from any members of the medical profession, living at the time when there was opportunity to witness the practical operation and inefficient results of these laws.* How little weight should be attached to this feeble protest is evident from the fact that a committee of five had been appointed in 1852, to report at the session of 1853, in regard to which the above circular was issued; and this committee, after a year's consideration, unanimously reported to the State Medical Society as follows (see p. 831, vol. ix.). "They also recommend that no attempt be made by this Society to procure any state legislation on the subject of license, *satisfied as they are*, that even if a wise and righteous law of this kind could be passed, *it would at best remain a dead letter*, and in the view of too many be regarded as a reproach to regular medicine. *As the best means* to uphold the dignity, defend the rights, and promote the usefulness of the medical profession in Louisiana, your committee would recommend the employment of all proper

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* Since the above was written, I have found the following additional protest.

Dr. A. F. Axson, Editor of the N. O. "Monthly Medical Register," published an editorial in the March No., 1853, upon "The License Law—State Medical Society," in which he states, "That any diversity of opinion should exist among the educated members of the profession, as to the policy and advantages of such a law, has ever been inexplicable to us;" and he urged the State Medical Society to make efforts to secure the re-enactment of a law regulating the practice of medicine—of a law full enough "to meet all the exigences of the occasion"—a law which, among other things, should refuse to recognize any diploma whatever, and force graduates from every school before the Medical Examining Boards.

measures to increase the membership of this Society, extending it if possible into all parts of the State; but at the same time observing rigidly the rules now in use for the admission of members, and the granting certificates of membership to all who obtain this right."

The evidence, now fully presented, serves to explain satisfactorily, I trust, why, as a member of our State Association, I, in January, 1878, strenuously objected to petitioning our legislature to "reëstablish medical examining boards," and insisted that for the present it sufficed for the society to first "*consider the propriety*" of such proceeding, before taking action.* The reader can now also understand why, when referring to our medical laws from 1808 to 1852, I, in *May*, 1874 (see pp. 828, vol. i., New Series), wrote: "Now, the reasons why these good laws, which vested authority in examining boards composed of our best medical men, were not enforced, should be sources of instruction and of serious thought to those *who advocate another trial of State action.* These wise and adequate laws were not enforced by the medical boards, *because public opinion would not sustain them.*" "Even without this experience, I should have urged that it is idle to expect from ignorance in thought persistent wisdom in action; from inferior citizens, superior conduct; and from institutions, any more rapid improvement than those are improved who support them; for, I concur with the distinguished philosopher (Herbert Spencer) who writes: "The belief, that a faulty character can so organize itself socially as to get

* I have not now information sufficient to justify a report as to all the states, but have been informed during this year (1878) that in several of the states (viz., Arkansas, Iowa, Maryland, Michigan, and New York), efforts are being made to secure effective laws regulating the practice of medicine; that Kentucky and Missouri have such laws, passed in recent years, but pronounced "worthless" and "dead letters;" that New Hampshire passed such a law in 1875, Texas in 1873 and subsequently amended it in 1876, California in 1876, Illinois in 1877, and that Vermont has such a law. The city of St. Louis enacted in 1877 ordinances controlling the subject. New York since 1806 has enacted many laws on this subject; the acts now in force are those of 1872 and 1874. Like Texas, New York places Homœpaths, and Ecletics, on the same footing as regular practitioners; and the history of all the legislation of New York teaches the very same lesson taught by the facts presented in this article as to Louisiana.

Before the Louisiana State Medical Association takes any action on this subject, in imitation of other states, it should be well informed what laws, efficient and satisfactory, now exist or ever have existed in any of the States, and should require *copies* of such laws, with *proofs* of their efficiency.

out of itself a conduct which is not proportionately faulty, is an utterly baseless belief."

Having now cited the laws regulating the practice of medicine in Louisiana from 1808 to 1852, and the testimony as to their operation and results, it remains to pursue the history of our laws to the present time. As has been stated, the repealing law, which widely opened the portals of Louisiana to irregular practitioners and quacks of every kind, was enacted March 10th, 1852. This law unchanged is repeated in the "Revised Statutes, 1856," and was, I presume, the law until 1861. Such modification as it then underwent can be estimated from the words of the law about to be presented as now in operation. For, our laws at present are those published in "Ray's Revised Statute Laws, to the year 1869 inclusive," (pp. 526-7), and are republished unchanged on pp. 696-7 of "Voorhies' Revised Statutes, 1876" which are "up to and including the session of 1876." These laws, presented in the nine sections, 'Sec. 2677-2685," were enacted at the following dates. Sec. 2684–2685 are parts of Act No. 49, 1847, and were re-enacted, p. 417 Acts of 1855; Secs. 2677–8–9–80—1 were enacted March 16th, 1861 (p. 113–4, No. 153 Acts of 1861), and Sects. 2682–3 are referred to p. 146 Acts of 1869.

These our present laws are under the heading, "PHYSICIANS," and are as follows:

"SEC. 2677. No person shall be allowed to practice medicine, as a means of livelihood, in any of its departments, in the State of Louisiana, without first making affidavit before a duly qualified justice of the peace in the parish wherein he resides of his having received the degree of Doctor of Medicine from a regularly incorporated medical institution in America or Europe, and designating its name and locality. (1861).

'SEC. 2678. The justice of the peace, before whom the said affidavit is made, be required to furnish to the person making it a certificate of the fact, and also to transmit a copy of the affidavit to the parish recorder, who shall record the same in a book to be kept for that purpose, for which services the aforesaid officers shall each be entitled to one dollar. (1861).

"SEC. 2679. Any practitioner failing to comply with the requirements of Sec. 2677 of this act, shall not be permitted to collect any fees or charges, for services rendered, by legal process—and moreover shall be liable to a penalty of twenty dollars for each and every violation thereof; said sum or sums to be collected by indictment or information, as in other cases provided by law. [1861.]

"SEC. 2680. One-half the fines imposed under this act shall be paid to the prosecutor, and the remainder into the parish treasury. (1861).

"SEC. 2681. The provisions of this act, relative to physicians, shall not apply to persons who have been practicing medicine for the space of ten years in this state, without diplomas, nor to female practitioners of midwifery as such. (1861.)

"SEC. 2682.* There shall be levied and collected an annual amount as a license--from each and every person pursuing any profession or occupation, not herein provided for, [physicians were not herein provided for] thirty dollars. (1869).

"SEC. 2683.* No physician, surgeon, midwife, lawyer, or other professional person, except teachers, shall practice in this state, unless he or she has first taken out a license in accordance with this law. No physician, surgeon, midwife, lawyer or other professional person, teachers excepted, shall be allowed to collect a claim for professional services, unless he or she can exhibit a license in accordance with this law; a failure to exhibit such license, when called for, shall entitle the defendant to a nonsuit. Each lawyer, etc., * * * * Any judge, justice, or recorder, violating the provisions of this act relative to physicians, shall be liable to a fine of $500, to be recovered before a District Court, to be sued for by the District Attorney or Attorney General—one-half to go to the informer, and the prosecuting attorney to receive a fee of $50, on conviction in each case. (1869.)

"SEC. 2684. The administration of the University of Louisiana, shall have the right of conferring, under their common seal, on any person whom they may think worthy thereof, all literary honors and degrees known and usually granted by any university or college in the United States or elsewhere. The degree of Bachelor at Law, and Doctor of Medicine granted by them shall authorize the person on whom it is conferred to practice law, physic, and surgery in this state. (1847 and 1855.)

"SEC. 2685. All diplomas granted by them shall be signed by the President of the University, the Chairman of the Board, and the professors of the departments in which the students may have graduated; and by such other officers of the University as may be provided for by the laws of the University."

In the Medical Department there shall never be less than seven professors, which number shall be increased only at the

*Secs. 2682 and 2683 are cited very differently in "Ray's Revised Statutes" in one volume (given above) from the text in the two volume-edition; although both editions are dated "1870." In the edition in two volumes, the law of the "Extra Session of 1870, p. 126," is cited. This law reduced the annual state tax for a physician's license to $20.

suggestion and recommendation of the faculty of that department." (1847 and 1855).

A few words as to the operation of these laws will end my task. Though a resident of New Orleans since 1851, I do not know, nor did I ever hear, of a single instance where the slightest regard was ever paid to the above provisions, Secs. 2677, 2678, 2679, and 2680; and the first two sections are certainly *dead letters.*

As to Sec. 2682, my own experience is that, after a physician becomes well known, the State Tax Collector never fails to collect the annual license tax which is now $20. If the law furnishes me, as a physician, with any *quid pro quo* for my $20, I am not aware of it.

In fine, my personal experience from 1851 to 1878, is, that no civilized country can surpass Louisiana in the freedom, from all practical legal restraint, enjoyed by vendors of poisons and of patent medicines, by superstitious and unskilled midwives, and by medical quacks of every description.

EXPLORATIONS AND RESEARCHES CONCERNING THE DESTRUCTION OF THE ABORIGINAL INHABITANTS OF AMERICA BY VARIOUS DISEASES, AS SYPHILIS, MATLAZAHUATL, PESTILENCE, MALARIAL FEVER, AND SMALL-POX.

BY JOSEPH JONES, M.D.,

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Reported for the New Orleans Medical and Surgical Journal.

I.—Explorations amongst the Monumental Remains of the Mound Builders of the Mississippi Valley, establishing the American Origin of Syphilis.

At the regular meeting of the New Orleans Medical and Surgical Association, held Saturday evening, April 27th, 1878, Dr. Joseph Jones exhibited a number of diseased human bones, from

the stone graves and mounds of the Mississippi Valley, which he regarded as the oldest syphilitic bones in existence. The most recent of these bones, as shown by the historical records of the migrations of the aboriginal inhabitants, and the exact dates of the periods at which they abandoned the sections of country where these remains are found, cannot be less than two hundred years, whilst the oldest, as shown by the annular rings of trees growing on the mounds and graves, may exceed five hundred years.

Even the most recent of these bones are older than the most celebrated pathological museums in Europe.

After a careful examination of the bones by the members of the New Orleans Medical and Surgical Association, Dr. Jones gave an outline of his explorations at various times in Georgia, Tennessee, Kentucky, Louisiana and Mississippi. The most recent explorations were amongst the earth and shell mounds of the low marshy coast of Mississippi and Louisiana.

Four miles above the Morgan Railroad bridge, on Bayou des Allemands, a perfectly straight canal, eight hundred yards in length and six feet in width, and four feet in depth, said to have been constructed by the aborigines, terminates at some Indian mounds, which rise from the extended marsh.

The island upon which these mounds are situated is seven and a half acres in extent, and rises from five to nine feet above the level of the marsh. It is composed of clam shells and dark loam, and on its face are two Indian or aboriginal mounds. The largest mound is one hundred and two feet in diameter, and fifteen feet in height. With twelve stout hands a trench was cut through it four feet wide and twenty feet deep. The mound was composed chiefly of shells, with fragments of pottery and bones of deer, turkeys, alligators, fish, racoons and other animals, many of which were fashioned into sharp implements. Only a few fragments of human bones were found, and those appeared to belong to different individuals and to be broken, as if the bodies had been consumed in a feast.

In the smaller mound numerous fragments of human bones were observed, and this was evidently the burying ground of the tribe; and here unmistakable signs of syphilis were found in the human bones, as had been discovered by Dr. Joseph Jones ten years before in the stone graves and mounds of Tennessee and Kentucky.

Other mounds were opened along the line of the Morgan Railroad, and were in like manner found to contain bones diseased by syphilis.

The marks of syphilis in the bones of the aborigines have thus been traced by Dr. Jones from the valley of the Cumberland to the shores of the Gulf of Mexico, and he presented to the New Orleans Medical and Surgical Association the following outline of those portions of this investigation which were related to the science of medicine.

The final abandonment of the great valley of the Mississippi by the primitive inhabitants, who were at one time very numerous, may be referred to three causes, viz.: 1st, emigration; 2d, destruction of the entire population during the various wars with the different Indian nations and with the Europeans and Anglo-Americans; 3d, destruction by pestilence.

It is evident, from the age of the trees growing in many of these mounds, that they were completed and abandoned long before the discovery and exploration of the North American continent.

My examination of the organic and monumental remains, and of the works of art of the aborigines of Tennessee and Kentucky, establishes the fact, that they were not the relics of the nomadic and hunting tribes of Indians existing at the time of the exploration of the coast and the interior of the continent by the white race; but, on the contrary, that they are the remains of a people closely related to, if not identical with the more civilized nations of Mexico and Central America.

The numerous stone graves and mounds scattered over a belt of country stretching from the shores of Lake Erie to the borders of the headwaters of the streams of Georgia, Alabama and Mississippi, are sad but unimpeachable witnesses of the fact that the fertile valleys of Ohio, Kentucky, Tennessee, Georgia, Alabama and Mississippi, were once filled with a numerous population; and the earthworks by which the mounds and graves are surrounded bear testimony to the fierce and continual struggles in which these people were engaged with the more barbarous tribes; and the question arises, as we view these extensive graveyards and burial mounds, by what *pestilence* or calamity were they peopled?

In the absence of all written records, and when even the name of the people whose bones fill these rude sarcophagi is a subject

of inquiry, the discussion of this question assumes such proportions as to embrace the consideration of the causes which led to the rapid diminution of the aborigines of America, not only after but also before its discovery by Columbus. Considered in a comprehensive light, this subject should command the attention of the statesman, the philanthropist, and the ethnologist.

The agencies which have, at various times, destroyed vast numbers of the aboriginal inhabitants of America, were *pestilence, matlazahuatl, malarial fever, small-pox, syphilis, ardent spirits, war, and slavery.*

Small-pox and ardent spirits committed their ravages after the discovery of America by Columbus.

The calamities of war and slavery were greatly extended and intensified by the presence and active agency of the Europeans.

That immense numbers of the human race have perished in North and South America, and in the West Indies, as the consequence of the introduction of Europeans, no one at all conversant with the records of history will deny, however much historians may differ as to the original population to be assigned to the different nations of this continent.

DESTRUCTIVE EFFECTS OF SYPHILIS. HISTORY OF SYPHILIS ON THE AMERICAN CONTINENT.

I have shown by careful observations, that bones taken from the stone coffins and burial mounds at Nashville, Franklin, Old Town, in Tennessee, and Hickman in Kentucky, and from the shell mounds on the coast of Louisiana, bear unmistakable marks of the ravages of syphilis.

The supposition has been advanced, that these bones presented merely "traces of periostitis," which were not due to the action of the syphilitic poison, because "it is uncommon to find shin bones of adults belonging to races clad in skins, and with the lower extremities exposed, in which there is not more or less roughness or hyperostosis along the tibial shafts." So far from these evidences of the action of syphilis being mere "*traces* of periostitis, and constituting mere roughness or hyperostoses along the tibial shafts," the bones are in many instances thoroughly diseased, enlarged and thickened, with the medullary cavity completely obliterated by the effects of inflammatory action, and with the surfaces eroded in many places. These

erosions resemble in all respects those caused by syphilis, and attended by ulceration of the skin and soft parts during life. Furthermore, the disease was not confined to the "tibial shafts;" bones of the cranium, the fibula, the ulna, the radius, the clavicle, the sternum, and the bones of the face exhibited unmistakable traces of *periostitis, ostitis, endostitis, caries, sclerosis, and exostosis.*

The medullary membrane was evidently involved in many cases to an equal degree with the periosteum; the difference in the appearance of the products of the syphilitic disease being due most probably to the great quantity of fat and other loose tissues, among which the vessels of the medullary membrane run. When thin sections of these bones were carefully examined with the naked eye, and by the aid of magnifying glasses, portions were found resembling cancellous tissue from the enlargement and irregular erosion of the Haversian canals, and increase in the number and size of the lacunæ; whilst other portions presented the hardened condition known as sclerosis. I observed in these bones, and especially in those of the cranium, the various form of osseous ulcerations which have been described by pathologists as characteristic of the action of syphilis, viz.: rounded ulcerations with glazed surfaces, and with marked hardening or eburnification of the bone beneath; tuberculated ulcerations, dependent not only on periosteal deposit, but upon chronic inflammation of the compact tissue itself; reticulated ulcerations, in which a network of periosteal deposit had formed, and which had been perforated by the ulcers subsequently forming and assuming the annular type. That these diseases of the bones were not due to mechanical injury, or to exposure to cold, is evident from the fact that they were almost universally symmetrical in their manifestations. Thus, when one tibia was diseased, the other was similarly affected, both as to the position and nature of the disease. In like manner both fibulæ presented similar evidences of periostitis, ostitis, and exostitis; this was true also of the bones of the forearm (radius and ulna), and of the clavicle.

The symmetrical distribution of the effects of disease in the two sides of the osseous system could only have resulted from the action of a poison introduced into the blood, and distributed through this medium to all parts of the body.

The North American Indians not only possessed, as is well known, great powers of endurance, especially of hunger and cold,

but their mode of dress protected their lower limbs admirably from injuries of all kinds, and especially from frost-bite. It is not true that they exposed the feet and legs without covering. These facts did not escape the accurate observation of Dr. Benjamin Rush! Thus he says, in his "Inquiry into the Natural History of Medicine among the Indians of North America:"* "I do not find that the Indians ever suffer in their limbs from the action of cold upon them. Their moccasins, by allowing their feet to move freely, and thereby promoting the circulation of the blood, defend their lower extremities in the day time, and their practice of sleeping with their feet near a fire defends them from the effects of cold at night. In those cases when the motion of their feet in their moccasins is not sufficient to keep them warm, they break the ice and restore their warmth by exposing them for a short time to the action of cold water." Dr. Rush adds, in a note, that "it was remarked in Canada, in the winter of the year 1759, during the war before the last, that none of those soldiers who wore moccasins were frost-bitten, while few of those escaped that were much exposed to the cold who wore shoes."

WAS SYPHILIS INDIGENOUS TO THE INDIAN RACE OF NORTH AMERICA, OR WAS THIS DISEASE COMMUNICATED TO THE ABORIGINES BY EUROPEANS?

In viewing the diseased bones from the ancient cemeteries of the interior of the North American continent, the question which naturally suggests itself is, was syphilis communicated to this ancient race by Europeans, or was the disease indigenous to the Indian race of North America?

The weight of testimony seems to sustain the view that syphilis was of American origin, and that it was originally imported from the West Indies into Europe. Whilst admitting that mankind had suffered with ulceration of the genital organs of a non-malignant character, and also, perhaps, with the simple contagious gonorrhœa for ages before the discovery of America, we desire simply to review, in connection with this discovery of the proof of syphilis in the stone graves of Tennessee, and mounds of the Mississippi Valley and shell mounds of the coast of the Gulf of Mexico, the testimony of certain writers who had oppor-

* Medical Inquiries and Observations: Philadelphia, 1805; vol. i., p. 25.

tunities of investigating the origin of syphilis, and at a comparatively early day in its history, in the West Indies and on the continent of America and in Europe.

That the venereal disease was introduced, in the year 1493, from America into Europe, by means of the troops of Admiral Christobal Colon, is a point which has been hotly contested by various writers. Astruc exhibits great erudition in showing that the disease was not known before the years 1494 and 1496. In the list of writers of the kingdom of Valencia, furnished by Vincente Ximeno, we learn that a Pedro Pintor was born in that capital A. D. 1420, and died at Rome in 1503: he was physician to Alexander the Sixth, who was also a Valencian, having been born in the part called Xativa. From the historical writings of Pintor, and of contemporary authors, it seems evident, as suggested by Dr. Sanchez, that the venereal disease, during its first prevalence, was a pestilential fever, which was communicable through the genitals, and otherwise; and that at that period there was no discredit or stigma attached to those who were afflicted with it: it was not considered as *contra bonos mores*. The Valencian author, following up the astrological notions of his time, attributes the disease to the same causes as epidemic plagues or pestilences. During the vernal equinoxes of this year this description of pestilence broke out in the city of Rome, as is gathered from the following quotation: "Talis autem epidemia in urbe Romana contigit anno 1493 mense Martii, post introitum solis in primum minutum Arietis." This disease was first noticed in the month of August.

Pedro Pintor, according to Cotunnius, Professor of Anatomy at Naples, was amongst the earliest writers upon the venereal disease; his work, entitled "De Morbo Fœdo his temporibus affigente," was published at Rome A. D. 1500. He attributed the origin of the disease to a conjunction of the planets; and no doubt he was acquainted with the circumstance of the disease being propagated by cohabitation with a diseased person. Several of the inhabitants of Rome were attacked, A. D. 1493, and the disease became common there until 1499. It principally attacked the limbs with excruciating pains and pustular eruptions, against which the physicians employed mercurial ointment mixed with lead—an invention said to be due to a Portuguese. So rife did the pestilence become, that, according to Ruy Diaz

de Isla, a native of Andalusia, their Majesties Don Fernando de Aragon and Donna Isabel de Castilla gave instructions to their physician to attend to those stricken with the disease, who were received into the hospital of San Salvador. Great numbers of the first professors and physicians of the land investigated the symptoms of the disease, and after treating it with the thousand and one remedies thought of with but little success, it was considered to be a chastisement from Heaven which befel all constitutions and conditions.

With reference to the origin of this pestilence, there are various opinions. When it broke out in the French Army at Naples, A. D. 1495, the French called it "the disease of Naples," and said that at the siege of that place there were certain merchants who barrelled the flesh of men slain in Barbary, and sold it for tunny! and that from such food the disease originated. It is said that cannibals are much infested with the venereal disease. It is said to have been known in England before 1162, and was called "brenning," or burning, as appears from Bishop Winston's records of the public stews. The disease is also said to have been described by one Arden, who was Surgeon to Richard II., in 1156, in a work expressly written on the subject. Syphilis prevailed at Naples amongst the troops of Charles VIII., in 1496. Gaspar Torella, a native of Valencia, physician and domestic prelate to Alexander VI., wrote a work upon the Morbus Gallicus, which was printed at Rome, according to Haller's account, in the year 1497. Astruc makes mention of another work, entitled "Ex Coitu cum Impura Muliere."

The famous Ruy Diaz de Isla published, in 1537, one of the best works which had hitherto appeared on the venereal disease. In order to avoid giving offence to any nation by using the popular names, such as the French disease, the Neapolitan, etc., he denominated his work "A Treatise of All Saints against the serpentine disease which came from the Spanish island Hispaniola; a Treatise compiled in the great and famous Hospital of All Saints, in the renowned City of Lisbon." Its author, following the opinion prevalent in his time, attributes the origin of this disease to Hispaniola, where the natives call it "le llamaban, buainaras, bipas, taynas olias." The reason assigned for using the appellation "serpentine" is, because the disease was considered to be analogous to the foulness of that reptile.

Bryan Edwards, in his "History of the West Indies," after describing the excessive sensuality of the aboriginal inhabitants of these islands, and alluding to this as the cause imputed by some writers for the origin of syphilis, "with the infliction of which they have almost revenged the calamities brought upon them by the avarice of Europe," nevertheless expresses his belief that the venereal affection was known in Europe many centuries before the discovery of America. He is compelled, however, to admit that "it might have broke out with renewed violence about the time of Columbus's return from his first expedition," and he explains this sudden increase of the disease by a reference to the increased activity and commerce of the age, thus: "This was the era of wonder, and, probably, the infrequency of the contagion before that period gave color to a report, perhaps at first maliciously propagated by some who envied the success of Columbus, that this disease was one of the fruits of his celebrated enterprise."

Edwards (vol. i., pp. 64–66) enters no further into the discussion than to refer to the dissertations of William Beckett (Phil. Trans., vol. xxvii., p. 365; vol. xxxi., p. 47), and to that of Antonio Riberio Sanchez, published at Paris, 1772 and 1774; to the authorities referred to by Mr. Foster, in his "Observations made during a Voyage round the World," p. 492; and to the following quotation: "In Stow's Survey of London (vol. ii., p. 7), is preserved a copy of the rules or regulations established by Parliament in the eighth year of Henry the Second for the government of licensed stews in Southwark, among which I find the following: 'No stewholder to keep any woman that hath the perilous infirmity of burning.'" This was 330 years before the voyage of Columbus. After a careful examination of the original papers of Mr. William Beckett (Phil. Trans., 1718, vol. xxx., p. 839; 1720, vol. xxxi., p, 47; 1720, vol. xxxi., p. 108), published in the Philosophical Transactions, I have failed to discover any clear evidence of the existence of syphilis before the discovery of America by Columbus.

Clavigero concludes his "History of Mexico" (vol. iii., pp. 415–435) with a dissertation on the *origin* of the *French Evil*, in which he in like manner quotes the dissertations of William Beckett and Sanchez, and endeavors to refute the almost universal opinion that the *French Evil* had its origin in America.

Neither Edwards nor Clavigero adduces one single fact or original observation to sustain this position.

On the other hand, Oviedo, one of the earliest writers who makes mention of this disease, and who also enjoyed opportunities of direct observation, says: "The venereal disease was certainly introduced into Europe from these islands" (the West Indies), "where the best medicine for the cure of it, the *guaicum*, is also found. * * * I was acquainted with many persons who accompanied Columbus in his first and second voyages, and suffered of this disease, one of whom was Pedro Margaritte, a man much respected by the king and queen. In the year 1496, it began to spread in Europe, and the physicians were wholly at a loss in what manner to treat it. When, after this, Gonzalez Fernandez de Cordova was sent with an army by his Catholic Majesty on behalf of Ferdinand the Second, King of Naples, some infected persons accompanied that army, and, by intercourse with the women, spread the disease among the Italians and French, both which nations had necessarily the honor of giving it a name; but in truth it came originally from Hispaniola, where it was very common, as was likewise the remedy."

Sir Hans Sloane, M.D., in his great work on the "Natural History and Diseases, etc., of Jamaica and other West India Islands," says: "Columbus likewise brought into Europe in his ship, and first voyage from these places, the pox, which spread so quickly all over Europe, that *Antonius Beniocnius*, who was at that time a great and famous practitioner of physic at Florence, in the first chapter of his book "de Abditis nonnullis ac mirandis morborum, et Sanationum Causis," tells us that the *lues venerea*, then beginning in Spain, had spread itself through Italy and France, and that in the year 1496, it had possessed many people in all the provinces of Europe.

Dodonæus likewise tells us that this disease very much raged in the war that Charles VIII., King of France had with Alphonsus, King of Naples, in the year 1494; and yet thinks that Gulielmus de Saliceto, who lived in 1270, Valeseas de Tarenta, who lived in 1418, and Bernardus de Gordonio, who died in 1305, give us an account of some symptoms of it. I am of opinion, notwithstanding what these have said, and some other less material passages in ancient works, and what Joannes ab Arderne wrote about an. 1360, and likewise what Stow says about

the laws of the public stews in Southwark, that this was a distemper altogether new in Europe, Africa and Asia, before it was brought from the West India Islands; the diseases meationed by the above cited authors being different from that distemper, both in symptoms and cure, only perhaps communicated somewhat after the same manner. I have seen some such cases, attended with considerable inconveniences and fevers, and yet not at all pochy."—London, 1707, Introduction.

Sir Hans Sloane was physician to the Duke of Albemarle, and in 1687 visited Jamaica, where he remained eighteen years; his testimony, therefore, is entitled to the highest consideration.

The historian, William Robertson, who appears to have examined the question of the origin of this disease with his usual care and learning, held that it originated in the West Indies. Thus in his "History of America," he says: "One dreadful malady, the severest scourge with which in this life offended Heaven chastens the indulgence of criminal desire, seems to have been peculiar to the Americans. By communicating it to their conquerors, they have not only amply avenged their wrongs, but by adding this calamity to those which formerly embittered human life they have, perhaps more than counterbalanced all the benefits which Europe has derived from the discovery of the New World. This distemper, from the country in which it first raged, or from the people by whom it was supposed to have been spread over Europe, has been sometimes called Neapolitan, and sometimes the French disease. At its first appearance the infection was so malignant, its symptoms so violent, its operation so rapid and fatal, as to baffle all the efforts of medical skill. Astonishment and terror accompanied this unknown affliction in its progress, and men began to dread the extinction of the human race by this cruel visitation. Experience and the ingenuity of physicians gradually discovered remedies of such virtue as to cure or mitigate the evil. During the course of two centuries and a half, its virulence seems to have abated considerably. At length, in the same manner as the leprosy, which raged in Europe for some centuries, it may waste its force and disappear; and in some happier age this western infliction, like that from the east, may be known only by description."—Vol. ii., p. 85.

In note xxiii. to the same volume, Robertson adds: "The rapid communication of the disease from Spain over Europe

seems, however, to resemble the progress of an epidemic, rather than a disease transmitted by infection. The first mention of it is in 1493, and before the year 1497 it had made its appearance in most countries in Europe with such alarming symptoms as to render it necessary for the civil magistrate to interfere in order to check its course."—Vol. ii., p. 379.

We have not considered it necessary to describe the relations of syphilis with the elephantiasis of the Greeks, or the leprosy of the Arabians, on the one hand, or with the *yaws* of Africa on the other, as they are clearly distinct diseases in their origin, history, symptoms, and mode of propagation; neither have we thought it necessary to examine critically in this place the various ulcers of the organs of generation described by Hippocrates, Pliny, and the older writers, since it is now clearly established that there are two well-marked varieties of venereal ulcers, one of which, known from time immemorial, is local in its character, and without constitutional symptoms and effects; nor have we deemed it important to corroborate the preceding testimony by the arguments of such learned writers as Fracastorius,* Astruc,† Harvey,‡ and others, but have viewed the question of the origin of syphilis as resting mainly on the testimony of such authors as Oviedo and Sloane, who enjoyed opportunities of personal observation and research in the West Indies, where the disease is said to have been first contracted by Europeans.

The question as to whether the natives of the North and South American continents were afflicted with syphilis at the time of their discovery and exploration by the Europeans, is involved in doubt and obscurity. The existence of the disease in the crowded West India Islands did not necessitate its existence on the continent.

After a careful examination of the accounts of the explorations and conquests of the early Spanish adventurers, we have failed to gather any testimony to settle definitely whether or not syphilis existed also upon the continent of North and South America.

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* Hieronymi Fracasterii Veron Liber Unus de Sympathia, et Antipathia rerü de Contagione, etc., 1554.

† A Treatise on Venereal Diseases in Nine Books, etc., by John Astruc. London, 1754.

‡ Venus Unmasked; or a more exact Discovery of the Venereal Evil or French Disease, etc., by Gideon Harvey. London, 1665.

We have not merely negative testimony, but the absence of all testimony. In the absence of any direct description of the disease by the early explorers, the discovery of syphilitic bones in stone graves and burial mounds in the Mississippi Valley, must be received as of the highest value in settling the question of the American origin of syphilis.

The early voyagers and explorers unite in describing the natives of America as remarkable for the perfection of their persons and limbs, and their absolute freedom from all deformities, ulcers and blemishes. The division of the North American Indians into numerous tribes and nations, hostile to each other, the necessity of constant activity and change of location imposed by their mode of life, by the chase, and by the incessant wars in which they were engaged, and the comparative sparseness of the population, were evidently unfavorable to the spread of syphilis.

John Lawson (A New Voyage to Carolina, etc. London, 1709, pp. 18–19) appears to have been the first author who asserted that the disease was peculiar to the North American Indians. His observations were made about two hundred and eight years after the discovery of the West Indies by Columbus, and the repeated contraction of syphilis by Europeans. During this time the most extensive intercourse had been carried on between Europe and America, and ample time had elapsed for the communication of this disease to the North American Indians, and also for its growth amongst these people, who were without any written records that the disease was peculiar to their race.

The Indian doctors of physic also appear to have favored this idea, with a view to magnify their skill and to excite confidence in their knowledge of the indigenous remedies of North America. Lawson's account of the "*epidemical*" character of the disease, and of its origin from drinking rum, and from exposure to cold and wet, and from eating such gross food as pork, is fanciful, and invalidates his testimony with reference to its existence among the Carolina Indians before their contact with Europeans. In fact, Lawson asserts at the same time that the Indians often get this disease from the English traders; and notwithstanding that he has given a long account of the skill of the "Indian doctor who had the misfortune to lose his nose by the pock," and alludes to a companion of the doctor who was in the same

unfortunate condition, affirms in another portion of his work that he had never seen "an Indian have an ulcer or foul wound, neither is there any such thing to be found amongst them." There is no question as to the accuracy of his assertion that "the pock is frequent in some of their nations," for he gives unmistakable examples of the disease, and recounts the method of cure employed by the Indians. Neither can it be denied that the disease was frequently communicated to the Indians by the English traders; but the testimony of Lawson as to the antiquity of the disease amongst the North American Indians, as well as to its mode of production and epidemical character, is not as full and circumstantial as could be desired for the determination of its exclusive American origin.

John D. Hunter, who was a captive amongst the western Indians for nineteen years, from 1796 to 1816, and who during his hunting excursions, and in the wars in which he was engaged with numerous tribes, enjoyed ample opportunities for extended observation of the habits and diseases of these people, affirms that "syphilis," as the Indians say, was entirely unknown among them until they contracted it from the whites. It prevails among several of the tribes with which I am acquainted, and proves one of their most troublesome and fatal diseases. Those who go among the populous white settlements on the Missouri and Mississippi, where the disease prevails in its most inveterate form among the traders and the boatmen who navigate the river to New Orleans, frequently return to their families and tribes infected with it. It often assumes a most distressing train of symptoms before the emaciated sufferer is aware of his situation."—Memoirs of a Captivity among the Indians of North America from childhood to the age of nineteen, etc., by John D. Hunter. London, 1823, p. 142.

We are not justified, therefore, in holding that the marks of syphilis in the organic remains of the stone grave race and mound builders of the Valley of Mississippi indicate that this once populous nation, which dwelt in towns defended with earthworks, erected large pyramidal mounds, and cultivated the soil, held intercourse with Europeans after the discovery of America by Columbus.

We have historical evidence to show that the most recent of these stone graves cannot be less than two hundred years old.

How much older the organic remains in these stone coffins or cists may be, we know not, as no records exist.

Chemical examination shows that the bones from the same aboriginal burying-ground present marks of having been deposited at different periods. Without entering into tedious details, I will simply state the general results of my examination, viz.: the proportion of organic matter varies within wide limits in the stone graves, and in accordance apparently with the age of the bones. In those bones which crumble readily the amount is small, although, as far as my examinations extended, it was always sufficient to give a black carbonaceous appearance to the bones during the earlier stages of incineration in crucibles. When acted on by dilute hydrochloric acid, many of the oldest bones dissolved, leaving a mere trace of organic matter or gelatine, possessing the form of the bones.

The diseased bones which I collected from the stone graves of Tennessee and Kentucky are probably the most ancient syphilitic bones in the world; and this discovery appears to be of great importance in the history of specific contagious diseases, in that it confirms the view held by some pathologists that syphilis originated in the western hemisphere.

The fact that the existence of syphilis was not noted by the early explorers amongst the nomadic tribes of North America, cannot be adduced to prove that the aboriginal stone-grave and mound-building race of the valley of the Mississippi contracted the disease by intercourse with Europeans. This is evident from the following facts established by my explorations.

(1) The mound builders of the Mississippi Valley were more advanced than the nomadic and hunter tribes of North America in certain arts. Thus they lived in compact, fortified towns and villages; they fashioned superior stone implements; they understood the art of sculpture, not only ornamenting their well-constructed vases with the heads of animals and men, but also carving images from blocks of stone, and fashioning them from a mixture of clay and crushed shells.

(2) The features of the images or idols fashioned by the mound builders of the Mississippi Valley were entirely different from those of the nomadic tribes. The head-dress and ornaments also were different, and in many cases resembled those employed by the Chinese and Mexicans in their idols.

(3) Whilst the crania of the mound builders of the Mississippi Valley possess in a marked degree those characteristics which distinguish the American race from all others, at the same time they appear to belong to the Toltecan division of the American nations, being characterized, in common with those of the Inca Peruvians and the Toltecs of Mexico, by the quadrangular form, compressed and almost vertical occiput, lateral swelling out of the sides, and elevated but retreating forehead. As in the case of the crania of the Inca Peruvians, their skulls are remarkable for their irregularity of form, for among the whole number examined, scarcely one could be called symmetrical; and in many of the crania the os Incæ, characteristic of the Peruvian skulls, was observed.

The fact that syphilis had committed ravages amongst the race of mound builders, at a remote period, was deemed of such importance as to arrest my attention in the midst of explorations conducted at various times during the past twenty years, and in various States, and unavoidably led me to a consideration of the time and place of origin of this loathsome and singular disease, which transmits its effects from generation to generation, and leaves a record which outlives death, and is as imperishable as the bony skeleton itself.

PLACENTAL DELIVERY.

BY JAMES E. MORRIS, M.D,,

Bellville, Austin Co., Texas.

In the February No. of your Journal my remarks are criticised somewhat severely, by Dr. Roberi, "On Immediate Placental Delivery." The doctor has not convinced me that I am erring, as yet. It is true he quotes from Dewees and Burns, than whom in their time there were none abler. Dewees' first work was published some fifty-four years ago, and Burns, I believe, contributed about the same time. Since that time rapid strides have been made in the healing art, in all branches, and in none more than in the obstetric, and its sister branch, gynæcology. About the time of the publication of Dr. Dewees' first contributions, Dr. McDowell successfully performed ovariotomy. This

operation was inadmissible, and not only inadmissible but *brutal*, and from no less a journal than the *Medico Chirurgical Review* came the bitterest of sarcasm. It has stood the test of time, and now scarcely do we turn to a leading journal, but we find the record of the relief of some poor sufferer.

In 1852 Dr. Marion Sims invented his speculum, which marked an era in the treatment of vesico-vaginal fistula, and other troubles of the female sexual organs. Dr. Dewees was a believer in the non-contagion of puerperal septicæmia. At the present day our leading medical minds differ on this subject, the majority (among whom I am) accepting the views of Holmes on this point. Some of us must be in error. Are our views therefore inadmissible? It has only been a few years since the discovery of anasthesia, and now an anasthetic, in some of its many forms, has become a necessary adjunct to every obstetrician's case. A great many, if not the majority, of the obstetricians of the day of the discovery, believing in the false interpretation of the Biblical doctrine, "in sorrow thou shalt bring forth children," would not consent to anything by which the excruciating pains of labor might be assuaged; we of the present day hesitate in using nothing by which suffering and *sorrow* can be relieved, provided we are assured of the safety of our means. Still, according to the older lights, our practice is inadmissible. Many a thing that was considered orthodox in the times of Dewees and Burns has by time, analysis, and experience, proven to be the reverse.

First, the "Truce." From Brickell I quote:

"In the truce which occurs so often after a storm of pains, resulting in the extrusion of the child in natural labor, we see a distinct inclination to rest; indeed, all the pains of natural labor are characterized by the interval of rest. Now we see, that in a large number of cases the uterus rests but a short time; in another larger number of cases it rests a much longer time; and in no inconsiderable number it rests so long that serious complications ensue. (See Dewees, Cazeau, Ramsbottom, etc. Ramsbottom says: 'Hæmorrhage under labor by far the most frequently occurs after the birth of the child and previous to the expulsion of the placenta, and unless the *uterine cavity* be *empty*, its perfect *contraction* (*which controls hæmorrhage*) is *prevented*, the *complete closure* of the *vessels* is *impaired*. In this case we do not hesitate to introduce the hand in the uterus and abstract

it.'—Am ed., 1865, pp. 394-5-6.) I contend that we know not under which class any given case may fall, even after most satisfactory performance of every previous step of labor; and if there be a safe and simple mode of bringing all under the most desirable condition, it is our duty to adopt it."

"2. Place the hand over the uterine region now, and we shall find not only the uterus firmly contracted around its contents, but we shall find it vastly reduced in diameter. You cannot fail now to realize that the original circumference to which the placenta was attached is so much reduced that, considering the frail nature of the attachment, the organ must by force of the plainest physical law be thrown off. And now in the majority of cases the assistance you give is by gentle traction, which is not necessary to detach, because the placenta is already detached by the reduction of the uterine walls by contraction on the *vacancy* made by the extrusion of the child. Traction is necessary, because of the constriction of the muscular fibres of the neck. The longer the placenta remains, the closer the neck becomes constricted, and the more difficult the delivery. Gentle traction and twisting rids the uterus of the foreign element entire. You have now completed the case of labor. You have no complications to fear, and now you can offer your congratulations with a degree of pleasure. Soon after the extrusion of the child, we find all things in a better condition for the delivery of the placenta than we ever find after it; the vulva is flaccid, its sensibilities obtunded, and the hand can be introduced without suffering to the woman and distress to the accoucheur."

Brickell's lecture, I regret, is too extended for full quotation, and I am of the opinion that if Dr. Roberi will secure No. 1, Vol. I., *Southern Medical Journal*, 1866, and peruse the article carefully, we will gain another follower to our ranks in what we deem imperative, because rational, midwifery.

3. "Ergot." The foreign body expelled, the ergot, on account of its tonic and hæmostatic properties, can be given, and the physician who so uses it will see and acknowledge the effect. I am in the habit of giving the fluid extract of ergot hypodermically. I formerly used Battley's liq., but latterly I have used Squibb's, and I have never seen any ill effects By this mode we can readily control the dose, can give it as needed, and we are not in danger of injuring the system by cumulative action.

My almost invariable plan is, about the time of the expulsion of the child, to give about 30 minims hypodermically, deliver the child, ligate the cord, see that the child breathes properly, and turn my attention to the winding up of the 3d stage of labor.

I would call the attention of your readers to the cases reported by Dr. Gaston in the July No. of this volume. In each and every one of his cases he had to resort to forcible delivery, and in all the cases with great suffering to the woman, and (according to my own experience) most probably with great trouble to himself. In all of the cases accompanied with hæmorrhage, the placental delivery relieved. Now I am of the belief, that if the rational mode had been adopted, the sufferings of the women and the trouble to the attendant would have been nil.

A little over nine years ago I commenced the practice of medicine in this section of the country; during this time I have attended at least two hundred cases of *my own*, and out of that number I have never met with a case of hour-glass or spasmodic contraction, nor of retained placenta, though I have been called by physicians to three in which I had to pass my hand into the neck up to the after portion of the uterus, beyond one of these contractions, and I know the operation was very disagreeable to myself and an agony to the woman. I am happy to say I made converts of the physicians. I suppose I have met with at least ten similar cases managed by midwives. Believing this mode to be rational, and therefore imperative, let us put ourselves in the "woman's place." At least one half of the women I have attended, who have previously been confined under the attention of the "wait-an-hour" physician or midwife, tell you their greatest dread is of the delivery of after-birth. To use their expression, "the child is nothing; the after-birth almost kills me; 'tis the only thing I dread."

Reason first taught me the necessity of this mode. Experience has added to it, and I see we are not alone in our school. From the *Charleston Medical Journal* I see that Dr. Lake, of Edgefield, S. C., has been practising this mode for 40 years, in more than one thousand cases, and he says: "For many years I have not had a case of retained placenta in a case of my own." I find, again, in my association with my confrères of the State of Texas, in our State Association, and in my trips as Medical Examiner, the numbers who follow and adopt this rational mode are legion;

and if the success which results be taken as a criterion, it has already become orthodox, and other modes are inadmissible.

The doctor quotes from the early members of the profession. I will resurrect the fossils. Hippocrates, Belsus, and Ambrose Paré advocated this mode. Dr. Hunter opposed following Rysch, but modified considerably in his later days. In my article which brought forth this discussion, I am caused to say, through my own fault, that I had seen ill effects from chloroform and morphine. I desire to modify the remarks as to the effects of chloroform. I have through necessity lately used it in a great many cases, and have seen no ill effects.

TREATMENT OF ASTHMA.

BY A. W. DE ROALDES, M.D.P.

Progress in therapeutics has, of late, been quite marked; indeed, so visible is the progress, that the most sceptical will be compelled to award to this science a certain measure of respect. We were present at some remarkable experiments recently made in Paris with salicylate of soda, in the treatment of gout and acute rheumatism. To-day we chronicle a medical triumph which cannot fail to become widespread, and which will recall hope to the breast of many a suffering invalid.

Dr. Germain Sèe, the learned Professor of Clinical Medicine of the Faculty of Paris, affirms that asthma can be cured, and in support of his assertion furnishes the proof. It seems to us proper, in this connection, to enter into a few details.

The remedy is not exactly a new one, but it is very evident that its proper application was unknown, it being a two-fold remedy—iodide of potassium on one hand, and iodide of ethyl on the other.

In 1860 an American physician, Dr. Horace Green,* sold in Boston, as an infallible cure for Asthma, a specific, the preparation of which was kept secret. Iodide of potassium was, however, a most appreciable component.

Later, a Mr. Ambray, a druggist physician, claimed priority in favor of an anti-asthmatic elixir, the formula of which he

* This could not have been Dr. Horace Green who became distinguished for his topical treatment of laryngeal diseases. The *Boston Medical Journal* will please give us correct information in regard to this matter.—(EDITORS.)

keeps secret to this day. The basis of this elixir is, it seems, iodide of potassium.

Betz, in 1869, and Weber in 1871 (*Deutches Archiv.*), claim to have used it successfully. In 1874 Spurgen, in England, combined Iodide of potassium with belladonna, ipecac and sulphuric ether. Troussean tried iodide, and says that he was successful in several instances and unsuccessful in one. Hyde Salter, in London, and Leyden, in Germany, also obtained results more or less satisfactory.

Matters stood thus when, in 1869, Dr. Germain Sée commenced his researches. Since this period he has had occasion to treat over fifty cases; not cases wherein he was called upon to cure a single attack (which would be but obtaining an insufficient result in chronic diseases), but cases wherein the disease itself was made to disappear. In twenty-four of the cases the cure was radical, and has so remained, though several years have elapsed. Let us rapidly enumerate the twenty-four cases recited by Dr. Germain Sée.

Four children, aged from five to ten years, cured in a few weeks; six youths cured in a year's time; ten adults, male and female, aged from thirty to fifty years. A woman, aged thirty-five years, was taken with the first attack in 1876, and it had continued fourteen days. The very first day's treatment was followed by an immediate cure. A woman, aged 36 years, who had been asthmatic sixteen years, was cured in Paris and now remains cured in London. Seven men saw their disease disappear, as though by enchantment, in a few days. Four persons, aged from fifty to sixty-eight years, were finally cured after a treatment of one or two years. Besides these twenty-four cases, we must mention seven others treated at the "Hôpital a la Charité" and the "Hotel Dieu;" and recently, two cases in the medical wards of Dr. Noël Gueneau de Mussy. (Séances de l'Academie de Médicine, du 29 Janvier, 1878.)

Briefly stated, the mode of treatment is as follows: Primary dose, 1 gramme 25 centigrammes (about 25 grains), to be gradually increased to 2 and 3 grammes (40 and 60 grains). Make a solution of iodide in water or claret, or better still, in syrup of orange peelings, of 10 grammes to 200 grammes of vehicle; give a dessert spoonful before each meal. After the lapse of a few days give two table spoonsful. The duration of the treatment is in a measure indefinite, but, as a general thing, the giving of

1 gramme 50 centigrammes (about thirty grains) per day will suffice at the end of two or three weeks.

The patient's breathing, after an hour or two, becomes free; recent emphysema disappears; sibilant rales are no longer heard. The effects of iodide are also certain, to divers degrees, in asthma with permanent emphysema, in cardiac asthma, in herpetic and gouty asthma, etc.

As to the inconveniences likely to arise from a prolonged use of iodine, they are not of a nature to preclude one from disregarding them in order to ensure the curing of the disease. There is but one contingency under which the use of iodine must be proscribed, and that is in cases of tuberculosis.

Dr. Sée sums up: "Cure in nearly all cases, even when the patients were under the influence of ordinarily detrimental atmospheric conditions."

We have said that the learned professor recommended, not only the use of iodide, but also that of iodide of ethyle. Iodide of ethyle was discovered by Gay-Lussac in 1825. It is a mixture of two parts, in volume, of alcohol, and of one part of iodhydric acid.

Laboratories, during twenty-five years, made no use of iodide of ethyle. It occurred to Dr. Huette, in 1850, to make use of it, in the shape of inhalations, in the treatment of pulmonary phthisis, after which iodide of ethyle relapsed into its former obscurity.

It occurred to Dr. Sée to cause asthmatic patients to inhale from six to ten drops of it six or eight times per day. The fit was immediately checked. The deduction is, that the second remedy is to be used accessorily at the very commencement of asthmatic attacks wherein it is necessary to remove the painful phenomena.

In conclusion, the experiments of Dr. Germain Sée terminated in two results: 1st, iodide of potassium is the most reliable and surest of the means at our command to effect a cure of asthma, whatsoever be the origin of the malady; 2d, iodide of ethyle is a speedy cure for attacks of asthmatic dyspnœa.

The results are numerous enough and striking enough to induce physicians to put into practice the mode of treatment prescribed by Dr. Sée, and our earnest hope is, that it will prove as successful in their hands as it did in the case of the learned professor.

OLEIC ACID AND SOME OLEATES.

BY LOUIS GENOIS,

New Orleans, La.

In the year 1872, the medical and pharmaceutical profession were greeted with the introduction of a new remedial substance for their favor, under the name of oleic acid. It was represented as possessing advantages over the fatty bodies hitherto in use, inasmuch, that it could dissolve certain metallic oxides and alkaloids, and would consequently be better fitted to serve the purpose of a vehicle when such substances were intended to be applied to any part of the surface of the body; for being in a state of *solution*, they would be more readily absorbed through the pores of the skin than they would be if simply mixed with simple cerate, lard, or other ointment. Its success since that time has been steady and sure, and at this day it is extensively used, especially by oculists, in the preparation known as oleate of mercury, which is by far the most popular of the oleates.

Quite a number of processes for making it have been given, which, if followed with some care, will invariably give good results; but some of them are unnecessarily complicated and troublesome, and the pharmacist often finds it cheaper to buy than to make it. With the view of simplifying the process of its preparation, I have tried various methods and made a number of experiments, and I find the following to meet the requirements better than any other:

Take of—

Oil of sweet almonds,	½ gallon,
Hydrate of potassium,	9 ounces,
Hydrocloric acid c. p.,	10 ounces, or q. s.,
Water,	q. s.

Dissolve the alkali in half a gallon of water and add the oil; put the whole into a stone jar of the capacity of three gallons, and work with a clean piece of wood until the soap becomes thick and very white: add half a gallon more of water, and work again until the mass is homogeneous; now heat it gently until it becomes thin, and add the hydrochloric acid; now raise the heat so as to disengage the oleic acid, which will then rise to the surface of the chloride of potassium solution; separate it therefrom,

and wash repeatedly with water (preferably distilled) until the washings cease to render a solution of nitrate of silver cloudy; then, heat again to free it from water; the resulting oleic acid is contaminated with margaric acid, to free it from which, it is only necessary to expose it to a temperature of 32° F., at which point the contaminating acid congeals, while the oleic remains fluid and can be separated from it by filtration. Thus prepared it is of a very pale yellow color, and as handsome as any made by more expensive and laborious processes; and if the hydrochloric acid employed has been pure, then it is obviously so. The most troublesome oleate to prepare is the

OLEATE OF MERCURY,

owing to the tendency of the mercuric oxide to part from a portion of its oxygen when heated in the presence of a fatty body; but by the following manipulations the danger of reducing it is entirely obviated. To prepare it of a strength corresponding to 20 per cent. of oxide, take of yellow oxide of mercury recently prepared, one troy ounce, oleic acid made by preceding formula, four troy ounces: reduce the oxide to a very fine powder by triturating it in a mortar; heat the acid to 150° F., keeping it partly covered by inverting a funnel over it; when of the proper temperature, pour a portion (about one-fourth) of it into the mortar containing the oxide, and triturate briskly for a few minutes, taking care to scrape the bottom and sides of the mortar to prevent the adhesion of any portion of the mixture, which becomes very tenacious; add more of the warmed acid, and continue the trituration. At this time a change in the color can generally be perceived, and it is of a more tractable consistence; from the deep orange yellow the mass has assumed a lighter shade. When the third portion of the acid has been added, the color changes much more perceptibly, and on adding the balance and working the pestle diligently, it assumes the appearance of butter, which quickly changes to white, when it may be considered finished. There should not be little yellow specks in it, which would indicate that the oxide had not been entirely dissolved. To make a 10 per cent. solution, it is only necessary to mix equal parts of the 20 per cent. oleate, and oleic acid. According to some authority (not now at hand), it can be made as strong as 40 per cent., but I have never made it stronger than

33 per cent. In order to make it of this strength, however, the mortar must be kept in warm water, and great care must be taken that the heat be not continued too long, lest the mercuric oxide be reduced to the metallic or mercurous oxide state. According to Dr. Squibb (Proc. Amer. Phar. Ass., 1877), it can be made of the strength of 20 per cent. without heat. I have made it that way also, but it takes about two days' time, and is not nearly as white as that made with the warmed acid.

The oleates of zinc and bismuth have also been recommended, but are not used in this section. The oleates of the alkaloids can be conveniently prepared, by dissolving the substance in the acid previously warmed; or sometimes it is required to dissolve an alkaloid in some oleate of mercury; in that case warm a little acid separately, in which dissolve the alkaloid, and mix with the other. I have seen cured a very obstinate ringworm in the neck of a lady, by applying an oleate of mercury and picrotoxin once a day for about two weeks; it was made by dissolving five grains of the latter and forty-eight grains of the former in an ounce of oleic acid.

EPITHELIOMA AND ITS TREATMENT.

(A Paper read before the New Orleans Medical and Surgical Association.)

BY A. B. MILES, M.D.,

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From time almost immemorial, the subject of malignant disease has demanded and received attention. From the time of Lorenz Heister to the present day, pathologists have bestowed upon this class of diseases more critical study, and their works mark the progress made. With no intention to disparage the excellent works of others, it is but just to acknowledge that to the Germans, who are to-day preëminent as pathological anatomists, the profession is most indebted for the accurate knowledge of malignant diseases which we now possess. It was Hannover who first gave to malignant epithelial growths the name epithelioma, which has now become a generic term, comprising varieties formerly considered separate diseases and so described; and

in the works of German authors, about 1840, we first find this form of cancerous disease more accurately defined.

Epithelioma is the most frequent of all the varieties of malignant formations, and, therefore, well deserves our most thoughtful attention. In this introductory paper, our endeavor will simply be to gather authentic pathological and clinical facts, and arrange them in practical form in view of a rational treatment.

The histogenesis of epithelioma long remained obscure, and the following is in evidence of the conflicting opinions which have prevailed in regard to its origin. One eminent pathologist has asserted that "the connective tissue furnishes the matrix from which the epithelium is produced." Another has declared that "the formation of the epithelium originates from the preëxisting epithelium of the rete Malpighii, or cutaneous glands." A third authority was equally confident that "the fibrous tissue of the cancer proceeds from the lymphatic vessels, and that the first cancer cells are altered lymph cells." Each had his respective following, and, for a time, pathological anatomists seemed almost hopelessly divided. A more recent writer, with commendable conservatism, is satisfied with the belief "that the first cancroid cylinders are the epithelial cones of the Malpighian layer"—"that the epithelial lining of the glandular organs may also serve as the starting point of an epitheliod proliferation"—"that perhaps even at the outset, certainly, however, at a later stage of the disease, the connective tissue involved may be stimulated to an epitheloid as well as to an inflammatory proliferation."

Let us make a running sketch of the histology of epithelioma as generally recognized at the present day. It is composed of a cellular and a stromal element. Careful and authentic research has traced the germinal cells to the normal epithelial cells of the locality in which the growth appears. Wherever epithelial tissue is most abundant, there epithelioma is most frequently found. The cells vary according to the character of the cells of the parent soil, vary also in size, in shape, in nuclear proliferation, and especially in their arrangement. While the cells proliferate from a central mass, they do not develope and extend uniformly in all directions. Usually they form irregular, conical-shaped processes, or epithelial cylinders, as they are called, which may end in bulbous extremities or form branches to unite with

those of other cylinders. (Kaposi.) Again, the cells are variously grouped in the meshes of the connective tissue, often forming themselves into concentric clusters, or epithelial nests, which many writers have so accurately defined and given so many descriptive names. Upon one point the pathological anatomists are quite agreed, that epithelial cells, proliferating and encroaching upon the neighboring tissues, characterize epithelioma.

The stroma formed of the connective tissue in which the cells proliferate or are inlaid, is neither uniform in quantity nor typical in texture. It contains the blood vessels, and sometimes stray epithelial cells. The relative proportion and relative position of these structural elements is by no means constant. We have it upon high authority (Rindfleisch), that "it is difficult to get any two specimens of epithelial cancer, taken from different parts of the cutaneous and mucous systems, which could be viewed as growths of an absolutely identical character." In view of the difficulty in an anatomical classification, is it surprising that even the most eminent microscopists and pathological anatomists should disagree? So varied in its external appearance, and so inconstant in its structure and structural arrangement, many pathologists, especially the English, Mr. Arnott among the number, argue against the practicability of an anatomical classification of epithelioma. All the varieties of cancer have their peculiarities, and yet one shades into another without any abrupt dividing line. So malignant epithelial growths, although dissimilar in many respects, preserve family features, and, in the alveolated arrangement of their structural elements, however faintly perceptible at times, retain the essential characteristics of the carcinomata.

We now come to speak of the clinical history of epithelioma, which after all most deeply concerns the practical surgeon. To facilitate a more accurate description of the clinical course of the disease, it is well to resolve epithelioma into its varieties. In Hebra's book on diseases of the skin, we find epithelioma divided by Kaposi into epithelial cancer of the skin, which is subdivided into the superficial, deep-seated and papillomatous form, and epithelial cancer of the mucous membranes—all representing the same pathological condition. The writer's description of the several forms is admirable, and true to the experience of us all.

The superficial form of epithelioma, or the "flat epithelial can-

cer" of Thiersch, begins with the formation of one or several nodules. These after awhile excoriate, ulcerate from without inward, as a rule, and exude a viscid secretion. This tenaceous fluid forms the scab, which adheres so closely and varies so much in its external appearance, now thin and almost transparent, again, thick, dark and crusty, or rising into a horny prominence. The disease advances by the formation of new nodules, composed of epithelial cells, around the border of the little ulcer. These epithelial cells subsequently break down to widen the ulcerating surface. So the superficial form of epithelioma grows by the successive formation of these border nodules, and their disintegration extends the cancroid ulcer. This form is the mildest of all, usually advancing slowly, sometimes scarcely perceptibly; occasionally healing in some parts while advancing in others; spreading superficially more often than extending beyond the deep layers of the cutis; involving even a large area without glandular infection or much constitutional disturbance, and lasting often for a long period of years. This is the pseudo-cancer or cancroid of Lebert, and, though it sometimes exists for a number of years without giving the slightest evidence of a malignant nature, is often denominated a "semi-malignant" growth. Superficial epithelioma, by the deep infiltration of its cells, may change into the deep-seated form—an occurrence not unfrequent in its advanced stage. The patient so often accurately describes this turning point in the history of his disease. The unsuspecting victim allows an indurated excoriation, or a little scabbing ulcer, growing so slowly as to cause no inconvenience or alarm, to remain unmolested perhaps for years, when, for some cause not always explained, it gives unmistakable evidences of a malignant character. Then, with an ulcer growing in width and depth, with defined, precipitous edges, an indurated margin and base, a granular-looking surface, secreting a scanty, sticky fluid—a thing almost recognized at a glance by an experienced eye—the patient, half suspecting, half fearing, applies for surgical relief.

The classification of this superficial form has been and is still the subject of much controversy. The older writers associated it with chronic inflammations, and, to-day, many modern pathologists are unable to distinguish its anatomical structure from the results of chronic inflammation. Holmes, in his work on the Principles of Surgery, treats of the Rodent ulcer with the rest of

the ulcers. As it lacks "the solid deposit and characteristic cells of epithelioma, and is not attended with glandular disease or with deposit in remote parts," the author prefers to separate the Rodent ulcer, which is now more properly considered the type of the superficial form of epithelioma, from the carcinomata.

The profession is much indebted to Dr. J. C. Warren, of Philadelphia, for his excellent monograph on the Anatomy and Development of the Rodent Ulcer. From a series of careful microscopical examinations, he concludes: "First. All those cases of Rodent ulcer examined are forms of epithelial cancer. Secondly. They differ from those forms of epithelial cancer of which cancer of the lower lip is the type, in the small size of the epithelial cells. Thirdly. These ulcers may be divided histologically into two different groups, according to the arrangement of the cancer cells, viz., into tubular and alveolar." The superficial is the form of epithelioma which embraces also the Exedent Lupus, the most common of the carcinomatous diseases of the scalp, the cancroid ulcer, the (non-syphilitic) phagadenic ulcer, etc., the errant kind which go so far astray as almost to sever the family connection.

Deep-seated epithelioma, or the infiltrated cancer of Thiersch, may come from the deep infiltration of the cells of the superficial form, or may develope primarily in the skin in the form of an elevated, uneven induration or a nodule. Experience has taught us to regard this nodular beginning as a bad sign. As a tubercular infiltration, the disease often appears in the spongy textures, especially on the glans penis and the lower lip. We have had frequent occasions to observe the increased malignancy of epithelioma situated in such yielding structures. We know that the shape of the cells is altered by the pressure of the surrounding tissues, and our clinical observation would favor the view that the rapidity of progress must be modified by this resistance. When the cells of superficial epithelioma infiltrate deeply they proliferate much more rapidly. In the deep-seated form the cells are large, the growth rapid, and the infection of the glands and neighboring parts occurs early. As it grows, the cell mass becomes irregular. For awhile the little tumor or raised induration, covered with healthy-looking skin, is easily defined and unattached to surrounding tissues. Before long, however, from external excoriation, a fissure or an ulcer may form. More frequently, from central softening, the nodule breaks

down, the skin gives way, the abscess opens, and the cancerous ulcer is formed. New epithelial nodules form around the ulcer, composed of short-lived cells which subsequently disintegrate. Thus the ulcer grows. The appearance of this ulcer, usually deep and circular, with its indurated, everted and "frill-like" edges, is too familiar to a practiced eye to need description. The ulcer is the track of the cancer which is going before, and often gives an inaccurate idea of the extent to which the disease has gone. The cells now infiltrate in all directions, deeply as well as superficially, and may form processes to extend far out into the neighboring tissues. All tissues yield before their encroachments. Deep-seated epithelioma then is essentially an "infiltrating tumor." Detached cells, transported by the lymphatic or blood vessels, or both, may even migrate and lodge in parts near or remote. In prepared sections, the microscope often reveals the cells deposited in the seemingly healthy tissues around the cancerous mass by this process of internal cell-grafting. The marginal induration, sometimes extending some distance around an epithelial formation, we have learned to regard with alarm, as indicative of this cell infiltration. The tendency of this form of epithelioma is very destructive. If malignancy be a clinical term, denoting rapidity of progress and a tendency to destroy life, the deep-seated epithelioma as well deserves the name "malignant" as any of the forms of carcinoma.

The papillomatous epithelioma, a not unfrequent form, may come from a papilloma or wart; may also arise from either one of the forms above mentioned, more frequently the latter. Its clinical course, somewhat modified by its origin, is nearly the same as previously described.

Primary epithelial cancer of the mucous membranes, though comparatively rare, appears in certain localities of which we are all aware. In a table arranged by Thiersch, only twenty-two of one hundred and two cases of epithelioma occurred in females. We are led to believe that careful microscropical examination of the malignant growths of the vagina and uterus will lessen the disproportion in the relative frequency of occurrence in the sexes, and also diminish the difference in point of frequency of epithelioma of the skin and mucous membranes. An ulcerating scirrhus and advanced epithelioma bear a close resemblance, and, as epithelial growths of the female organs often come under observation late in their progress, without microscopical exami-

nation, a mistake may easily arise. Three cases of primary epithelioma of the mucous membranes in the negro have come under our observation, but we have never seen the growth on the negro's skin. We would gladly receive information on this point.

Epithelioma of the mucous membranes usually shows itself as a superficial circular ulcer, or as a "tuberculated sore," and progresses in the same way as the forms of the disease previously described, proving more rapidly fatal, as a rule, on account of its location in proximity to more vital parts. The cauliflower excresence, an appearance caused by the fissuring of the surface, is a form often assumed by epithelioma, and is most common in married females past the menstrual life. This variety of epithelial growth bears so close a resemblance to simple exuberant papillomata, especially those which form around the genitals of both sexes, as to require a close observation of its clinical course, as well as the test of the microscope, to determine its true character. So, also, the features of many of the varieties of epithelioma and some of the syphilitic ulcerations are so much alike as to require every aid in a differential diagnosis.

In all the varieties of carcinoma, involvement of the lymphatic glands is a sign of malignancy, and no less so in epithelioma. The glands are affected earlier in scirrhus than epithelioma. As a rule, scirrhus is a deep growth, while epithelioma is a superficial growth. The glands are affected earlier in the deep-seated than in the superficial form of epithelioma. While epithelioma is superficial, the lymphatic vessels do seem to be compressed and closed. When, however, the cells infiltrate deeply, and those destructive changes ensue which have already been described, the walls of the lymphatics are very probably broken down, as the walls of the arteries when the hemorrhage occurs, and open the readiest way of cell transportation. We have seen the veins of the leg filled with putrescent matter, sucked up from a gangrenous foot in a process perhaps entirely similar.

The process of cell infiltration and cell migration is not subject to direct observation, and is not quite clearly understood, but the evidence is strong that the lymphatic vessels are mainly concerned in the transportation and settlement of the epithelial cells. It is in the track of the lymphatics, and usually in the nearest of the chain of glands, that we find secondary formations. These secondary growths in their organization resemble

the original, sustaining the theory of the transference of cells and not a cancer juice. Cornil and Ranvier have seen the mouths of the lymphatics opening into the alveolæ of scirrhus, and, whether migrating or proliferating from the normal endothelial cells, according to the theory of Koster, the lymph vessels have been found clogged with the epithelial cells. In speaking of the infection of the lymphatic glands, we were gradually led into this discussion of the way the cells travel. That the veins, too, may convey the epithelial cells to even distant parts of the body (and when the cells reach distant parts we must believe the veins carry them), we have the recorded evidence of Sir James Paget. In Arnott's book on Cancer will be found the record of a number of interesting cases, illustrating a variety of ways in which epithelioma may spread. Whenever a way of transportation opens, cells may become detached and migrate, and the disease pass from its original local limits.

Upon this follows the paramount importance of an early diagnosis, on which the success of the treatment depends. A chief object in the study of epithelioma should be to acquire such knowledge as to enable us to differentiate at once, even in the most doubtful cases. Too often at the present time do we see the attending or consulting surgeon, with questionable prudence, propose to wait for the disease to characterize itself.

In the beginning epithelioma is localized, and, in the superficial form especially, also in commencement of its other forms, is undoubtedly the most curable of all the malignant diseases. In the practice of Professor Logan, as well as our own, we can cite instances of its cure. It is noticeable how often in the medical journals we see recorded cases of epithelioma successfully treated by one method or another. The writers, however, often neglect to mention the form and the stage of the disease. Such omissions are calculated to create erroneous ideas. The variety of escharotic agents recommended for its destruction, no doubt arises from the fact that each agent, in the hands of its special advocates, has accomplished a cure. We are equally confident of the incurability of epithelioma in the last stage of its malignancy. Hence the propriety, in the consideration of its treatment, of dividing the disease into clinical stages. The first stage will comprise superficial or mild form of the disease and the beginning of the other forms. The intermediate stage refers to the period during which the cells are actively infiltrating the

surrounding tissues, infecting the neighboring glands, and invading the general system. The last stage comprehends the disease in all its malignancy, after it has infected the glands, invaded the system, and passed beyond the surgeon's hope of restraining its relentless ravages.

The task were too tedious to rehearse all the theories which have been entertained in regard to this form of cancer, or enumerate all the medicines which have been used in its treatment.

Professor Busch, of Bonn, in a recent contribution recommends an alkaline (soda) solution for the removal of the epithelial deposit on the surface, with which we are all familiar, and which is, in many cases, the beginning of an epithelial cancer. We recently saw, with Dr. Pratt, an old lady, sixty-seven years of age, whose face was covered with furfuraceous epidermoid scales, which in places were thick and dark colored, giving her a mottled appearance. We would further state in regard to this case, that at the time of examination we recognized three separate epithelial growths—one just over the left frontal eminence, the size of a butter bean; the second, half the size of the first, on the lower lid near the outer canthus of the left eye, both of about four months' growth; the third on the back of the left hand, about two inches in diameter, beginning twelve months' previously in a "scratch" on the knuckle of the index finger. If in such cases we can prevent epithelial formations by applying an alkaline solution, the ounce of prevention will exceed the pound of cure. We have no experience in the use of the alkaline solution. We feel, however, that the eminence of the writer fully justifies a trial of the treatment he recommends. Again, Professor Busch says: "In many cases, recurrence after extirpation may be prevented by washing the scar and its surroundings with the alkaline solution."

After the diagnosis of epithelioma, the only rational treatment which the pathology of the disease, as at present known, would indicate, is its complete removal or its complete destruction. The judgment and ingenuity of the operator will adopt the best means, according to the situation and extent of the disease, of securing this desired result. Whatever the means employed, the ruling idea should be its radical removal or destruction. The subsequent healing of the wound is of secondary importance.

Excision with the knife or scoop is preferable when practic-

able. The use of an escharotic after the knife, though it is likely to retard healing, is prudent practice, in cases of doubt lessening the risk of recurrence. The galvano-cautery is preferable in removing epithelioma from parts not conveniently accessible, as the cervix uteri, or from vascular parts, as the tongue, genital organs, etc.

Escharotic agents, locally applied, are the medicines in most general use in the treatment of epithelioma, the experience of more than two thousand years having proved the futility of specific remedies administered internally and directed to the cure of cancer. The escharotics in most common use, as far as we can ascertain, are Vienna paste, arsenical paste, the acid nitrate of mercury, caustic potash, the caustic acids, the chlorides of lead, of zinc, etc. Sometimes the escharotic is best applied in the form of a paste; again a fluid is preferable. Some of the escharotics burn superficially, others deeply. We have had occasion to witness the action of a good number of these, and according to our experience, one efficient escharotic is about as good as another. Each, however, has its special advocates. When the chloride of zinc was first used in England, nearly a half century ago, in the cauterization of cancerous growths, there were many of the profession of that day to declare that it not only acted as an escharotic, but exerted some inexplicable influence in arresting the progress of the disease.

The chloride of zinc has long since sought its level amongst the escharotics, and as such is preferred and used by Billroth. The history of the treatment of epithelioma repeats itself. By sad experience, by our own failures, we have become skeptical in regard to specific remedies. Cauterization for the destruction of epithelioma should at once be complete, if possible, and, in the first stage already defined, promises about as good results as excision.

Even in the intermediate stage, above mentioned, so long as the extent of the disease does not entirely preclude the possibility of its being circumscribed, attempts at removal are justifiable. And here we would especially urge the necessity of a decisive treatment. The practice of preserving even a suspected cancerous flap to hide an ugly wound, is too deceptive and too dangerous to be justifiable.

When, however, the epithelioma can not be circumscribed, the propriety of operating through cancerous tissues is an open

question. The healing which occurs after removal of a portion of an incurable epithelioma is often exceptionally good, but deceptive. The disease progresses, and our experience leads us to believe, with increased rapidity. In a majority of such cases the operator becomes more destructive than the cancer, and the operation rather hastens than defers the climax of the disease. In many cases it is a mistaken notion that surgical interference will prolong life. An operation usually affords temporary relief. Then it rests with the patient to decide whether he prefers comparative ease of shorter duration or a longer period of suffering. The practice of frequently cauterizing epithelioma advanced too far for complete destruction, is most strenuously to be deprecated. This intense irritation without doubt increases the cell growth; and, unless the cauterization be sufficiently frequent and thorough to hasten the death of the patient, the cells will doubtless proliferate more rapidly than they are destroyed. Too often the rapidity of the growth is but commensurate with treatment. The most distressing cases of epithelioma which have yet come under observation have run the gauntlet of the clairvoyant, whose practice usually consists in repeated cauterization or the constant application of intense irritants. In the use of lotions, as the disinfectants, deodorizers, etc., which are often indispensable, even the mildest and least stimulating in their action are the most appropriate.

Since vascular tumors are shriveled, and even hypertrophied organs are said to be reduced, by subcutaneous injections, hypodermic medication is recommended in the treatment of epithelioma. The injection of a two per cent. solution of bromine is recommended. We have seen no good result from this treatment. The injection of a two per cent. solution of acetic acid has more recently received strong endorsement, especially by the German surgeons. The cells are supposed to be either destroyed or checked in their growth. Unfortunately we can not accurately locate the cells of epithelioma, as they develope in cellular processes, infiltrate the neighboring tissues or migrate into remote parts, to apply remedies with more precision. Having but little faith in this plan of treatment, we await the test of practical experience.

In conclusion, we would sum up a few pretty well established facts in regard to the occurrence of epithelioma. The earlier it is removed, the less likely it is to return. The younger the

patient the more frequent, as a rule, is recurrence. The more active the progress, or the more malignant at the time of removal, the more likely is the disease to return. Epithelioma may recur even twelve months after its supposed removal. We often lose sight of our patients before that time, and old persons especially may die in the meantime of another disease.

In view of these contingencies, very probably a closer investigation would diminish the number of radical cures reported. A recurrence of epithelioma, of course, should be treated as the original.

We have made no attempt to condense the literature of epithelioma in these pages. From the standard works of some of the recognized authorities we have gleaned facts, herein recorded, especially those observed in the course of our clinical studies. We have purposely omitted many interesting topics of discussion in regard to epithelioma, as well as certain details of treatment, which the general rules of surgery would indicate. If the discussion which this paper is intended to introduce, develope a single fact to aid us in the more successful treatment of epithelioma, the reader will feel fully recompensed for his pains.

CURRENT MEDICAL LITERATURE.

APHORISMS IN FRACTURE.

By Richard O. Cowling, A.M., M.D.,

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A paper read before the Kentucky Central Medical Association at its meeting in Harrodsburg, Kentucky, July, 1877.

Gentlemen of the Kentucky Central Medical Association:

I must offer an explanation for some peculiarities which will be found to exist in the paper prepared by me to be read upon this occasion. It was the suggestion of your president that I should write upon fractures, a suggestion which I gladly accepted, as it relieved me from the necessity of choosing a subject (which is half the battle), and at the same time it offered a most interesting theme for consideration. It was easy to see, however, that the subject was so vast that I must either subdivide it or give but a very cursory glance at it as a whole. I did not think that either of these plans would be satisfactory; and yet there

was another method, which promised to be comprehensive, and of interest to us all. It was this: rejecting all matters of history, discussion of methods, etc., to take the prominent points which arise in fractures, concerning their diagnosis, and treatment, and to lay them down in a series of *aphorisms.* In such a manner we can cover a vast field in comparatively a short space of time. It is, too, a very useful way of imparting and receiving information. It is of course in its very nature dogmatic, as it offers no proof for its assertions; but it is presupposed on such a subject as this that the evidence on all sides has been more or less weighed, and we can judge how far the propositions laid down accord with our several convictions. Aphorisms form the method we use continually in conversation, where we first of all state our propositions positively, and discuss them afterward if there be any necessity. I shall be glad, indeed, if any members of the society will do me the honor to assent or dispute any proposition I may make, that the truth may be better arrived at.

I have felt it necessary to apologise in this manner for the aphorisms I offer, as several of them I know very general opinion will controvert.

But one word first in regard to the subject I have taken, and I proceed with my subject. Fractures form perhaps the widest chapter in surgery of any importance, and the experience gathered concerning them is correspondingly great. There are few members of the profession who have not treated a number of cases of broken bones, and yet with all these opportunities for observation, a singular difference of opinion exists on some very fundamental points. John Erichen, the apostle of plastic dressings in England, with the force of his great name and reasoning, had six years ago converted but the single hospital of which he was a surgeon to his teachings; albeit that south of the Ohio his doctrines, with the corroborative teachings (in the main) of Gross, have such sway; and in this country the practice of the two largest medical centres, Philadelphia and New York, is at total variance. And this variance in practice also prevails through the country at large. Practitioners are very slow to change the methods taught them in their early days; both from the fact that facility in new methods is hard to acquire, and respect for ancient teaching is lasting.

It is for these reasons that one most disastrous form of dressing fracture remains to a great extent to the present time in Kentucky. I allude to the control of muscular spasm by the use of direct bandage. Such were the lessons of Dudley at Lexington and Gross at Louisville. In their accomplished hands the method was highly efficient and free from danger; but many a limb has been sacrificed to it when pursued by some of their less skillful followers

The question of extension and counter-extension in fracture is still a vexed one. You will find in the article in Holmes by

Mr. Flower that he describes a "crutch-splint" with which to exert these forces in fracture of the upper arm, while upon the other hand the necessity for such measures is denied by a large body of surgeons even in fractures of the thigh. Men are divided upon the simple question of when to dress a fracture, and upon the apparently positive knowledge concerning the prognosis of fracture and of how to dress a fracture it would take volumes to record the literature with which surgery has been flooded. We have all felt the disadvantage of this especially in the early days of our practice; how our memory has been taxed with the multiplicity of apparatus, losing sight, in the midst of so much paraphernalia, of the fact that the principle of treating every fracture is the same.

It will be a grand day for surgery when the lumber room which contains its fracture boxes and splints of various designs shall be destroyed. The simpler necessities of our art could easily be restored.

With such a condition of affairs as this, of course an account of fractures which attempts anything like detail must deal often with elementary points, and this must be my excuse for much that follows.

GENERAL APHORISMS.

1. In establishing diagnosis of fracture, crepitus is the most satisfactory sign, nevertheless it is not always necessary or desirable to obtain it.

2. There is frequently a physiognomy about fractures which declares the nature of the lesion; notably in Colles' fracture of the radius, ordinary fractures of clavicle, and fractures of the femoral neck.

3. The sensation in crepitus in recent fracture is *sui generis* and unmistakable. When once detected, further attempts to elicit it should not be made, except for the benefit of an accompanying physician, who may be in doubt as to the nature of the injury.

4. Crepitus can not be had in impacted fracture, except to the injury of the patient. It is exceedingly difficult to obtain in intra-capsular fracture of the femoral neck under all circumstances.

5. "Loss of function" as a symptom is all-important in establishing diagnosis in certain fractures; notably in the fracture of the surgical neck and fracture of the outer portion of the clavicle.

6. Whenever any doubt exists as to the diagnosis of fracture, the examination should be conducted under an anesthetic.

7. The chief difficulty in the differentiation of fracture is from sprain, and not from dislocation, which has its own positive signs.

8. The prognosis in simple fracture is always favorable when the injury is confined to the shaft of the bone, even if there be comminution of the bone.

9. In multiple fracture, when simple, the healing-process is not retarded.

10. In fracture involving a joint, more or less stiffness is always to be feared.

11. With the improved methods of treatment, the danger to life and limb in compound fracture has been reduced to such an extent that the former laws for determining the question of amputation are to be recast.

12. The best time to dress any fracture is immediately after its occurrence.

13. Temporary dressings are only to be used when the materials for permanent dressing are not to be obtained, or for the purpose of moving the patient.

14. Under proper treatment immediately instituted swelling will probably be prevented.

15. The indications for treatment of fractures are, first, reduction of the fragments of bone; second, their immobilization.

16. The dressing of all fractures is best done under an anesthetic; which not only secures the comfort of the patient, but by its influence over muscular spasm gives the best chance for perfect reposition of the fragments.

17. Perfect immobilization is only to be obtained when the joints contiguous to the fracture are secured; and there is no law more important than this in the fractures of the lower extremity.

18. One of the commonest reasons for the failure and disaster in the treatment of fractures arises from the fact that bone and muscle only are considered, and blood vessels and nerves are left out of sight.

19. Carved and manufactured splints generally fit nobody, and are to be rejected as not only expensive but damaging. Deal board pasteboard, and the materials for the plastic apparatus, form all the appliances needed by a surgeon.

20. The application of a bandage immediately to the skin, whether as a protective or to prevent muscular spasms, has resulted in such disaster that it is one of the curiosities of surgery how it could be repeated at this day. When cotton is placed *over* such a bandage, it forms an absurdity scarcely credible in a man of ordinary sense.

21. Evenness of pressure is only to be obtained by the proper lining of the splints or retaining apparatus with cotton, or in the case of compound fracture with oakum. The method of padding splints, or protecting limbs with folded lint, blanket, etc., is not only vastly inferior, but generally results in discomfort to the patient, from the close packing of the material.

22. The cotton to be used is preferably known as "batting"—

"wadding" is inferior. It is of prime importance to use proper batting whenever it can be obtained. It varies greatly in quality, and only the best should be used. This is smooth, easily separated in layers, and free from foreign substances, which produce inequalities and irritation. The layers should be unbroken. It is next to impossible to make even dressing with the broken bits which the housewife so often offers to the surgeon. It should be freely used, especially over bony prominences. A fracture in the thigh of ordinary dimensions, will generally require a "pound-roll." It is to be smoothly and evenly applied. For convenience it may be held in site while the rest of the dressing is applied by ordinary sewing thread, which does not constrict.

23. Continued extension and counter-extension are as a rule not necessary to prevent shortening in fracture. This is best done by removing the causes which lead to muscular spasms; first, by early interferences; second, by as complete reposition of the fragments as possible; third, by the smooth application of cotton batting to the limb; fourth, by the equal pressure of the bandage going from the distal end of the limb to a point beyond the joint above the fracture; fifth, by the accurate fitting of the splints or plastic material for support; sixth, by as little interference afterwards as possible.

24. Angular deformity is best overcome by the same measures as are used in longitudinal deformity. Compresses are to be avoided as insufficient and unsurgical.

25. Bandages are made of cotton or cheap flannel (preferable for the cotton in it) with the selvage torn off, and thoroughly shrunk.

26. Plastic material consists of cotton, bandages, plaster of Paris, eggs and flour, starch, liquid glass, etc.

27. Comfort is the sign that a fracture has been properly dressed. A certain amount of soreness may be felt after any fracture, and with some temperaments pain may be present even when the fracture is properly dressed; but the general law is that pain should speedily subside when the dressings are not at fault.

28. Frequent dressings of fractures for the purpose of examination are not only useless but hurtful.

29. Whenever it is possible, after the dressing of a fracture, it should be seen again in a few hours, and the case should receive daily attention in its earlier stages.

30. The surgeon is to regard not only the welfare of his patient but his own reputation. To this end he ought to give fair warning as to possible ill results. As suits for malpractice have arisen oftener from fracture-cases than any other kind, it will be remembered there is one thing which the law is slow to excuse—neglect.

31. If there be a consultation between two physicians in a fracture-case, and a difference of opinion in regard to treatment

arise, one should yield. Compromises in cases of this kind are apt to result badly, while fractures may do well under almost any reputable method properly pursued.

32. If in case of fracture a consultation is called of a surgeon by one who does not make special pretensions to the art, he should resign to him the conduct of the case, as on him will rest the responsibility of the out-come. In other words, he who "sets" the fracture, not he who watches it, is charged with the result.

33. Whenever a fracture occurs every physician in the community within reach is summoned. The doctor should therefore be ready to treat such cases not only for the comfort of the patient, but for his own profit.

FRACTURES OF THE FOREARM.

34. There is but one mode of dressing necessary for all fractures of the forearm, whether these be of one bone or of both, and whatever be their situation.

Method of Dressing.—The pieces for dressing a fractured forearm consists, first, of cotton batting; second, of light wooden splints; third, of bandages. The splints should extend from the elbow to the tips of the fingers; they should be a trifle wider than the wrist, to prevent lateral pressure upon the bones and the obliteration of the interosseous space; they should not be much wider, else lateral displacement may occur. For convenience they may be shaped to the arm and hand. It will always be found more convenient to envelope the arm with the cotton, instead of padding the splints with the same; and where splints are padded with cotton, it is always better to fasten this material by a few turns of ordinary sewing thread. The method of padding splints by securing the cotton bandages interferes greatly with their plasticity and comfort.

The bones having been put in apposition by gentle extension, and the splints secured to the palmar and dorsal aspect of the arm by proper bandaging from tips of fingers to elbow, the arm is to be placed in a sling, with thumb pointing upwards, in which position the bones are half-way between supination and pronation, and the interosseous space is well preserved.

The dressing, when fitted for fracture of the forearm, is not to be removed, if comfort declares that it is properly doing its work, for a week or ten days, when the splints are to be shortened, so that they shall not reach beyond the roots of the fingers—and these are to be exercised frequently to prevent stiffness.

The interosseous pad, formerly considered necessary to preserve the interosseous space, is very nearly obsolete, and should be entirely so.

35. The Pistol-splint does nothing towards preserving the interosseous space.

36. The complicated dressings for Colles' fracture of the radius are not called for, and such dressings as include a compress to correct deformity are to be condemned as unsurgical, not only at the wrist, but anywhere.

37. In Colles' fracture, after union has taken place, there frequently remains some of its characteristic deformity. In the young this generally disappears under the play of the muscles, or sometimes in bone recently united, it may be remedied by actual compression.

38. A common result in Colles' fracture, and in fractures near the wrist in adults, and especially in the aged, is a severe and persistent neuralgia. It is best treated by the hot-water douche.

39. In fractures of both bones of the arm, and frequently after fracture of one bone, after union there is a bowing of the forearm always toward the ulnar side. Sometimes this is chiefly apparent, often real. It will frequently disappear, even when excessive, under the play of the muscles, especially in the young.

40. Stiffness of the tendons and of the wrist-joint are not confined to Colles' fracture, but may occur with other fractures of the arm. Massage and passive motion will generally effect relief.

41. Many physicians do not have clear ideas concerning the fitting of a sling. It should always be worn so that the straight side comes to the hand, and the angle to the elbow.

42. Fractures of the bones of the hand are best treated like fractures of the arm.

FRACTURES NEAR THE ELBOW.

43. Every injury, save fractured olecranon, near the elbow-joint, whether it be fracture or dislocation, should be dressed with rectangular splints.

Method of Dressing.—The rectangular splints for the elbow are best made from pasteboard. The limb from the fingers to the shoulder is to be enveloped in cotton; the splints, moistened in water, are to be applied laterally, moulded and confined with bandage from hand to shoulder. At the end of a week or ten days they are to be removed, and passive motion to be gently instituted, and this had best be repeated every second or third day during the progress of the treatment.

Rectangular splints are called for in injuries near the elbow, as effecting in the best manner immobilization; and, secondly, should anchylosis result from the injury, they preserve the arm in the best possible shape for its future usefulness.

44. More or less stiffness of the elbow is to be expected in every fracture occurring near this joint. If the fracture be through either condyle it cannot well be avoided, as passive motion in such cases, when early instituted, is liable to prevent

union of the bone; but if the bone be broken above the condyles, it can frequently be prevented by careful treatment.

45. Where decided stiffness has persisted for some time after the union of fracture near the elbow, much can be done for its relief by passive motion and massage, if faithfully pursued.

46. In fracture of the olecranon where there is no separation of the fragment, owing to the fact that the fibrous expansion of the triceps is unbroken, the arm may be dressed in an angular position. In fracture with separation of the fragments of this bone, it is necessary for their apposition that the arm be dressed in an almost straight position, but the earliest possible moment should be seized to bring the arm back to an angular position, that anchylosis may not occur with the arm straight and useless.

FRACTURES OF HUMERUS.

47. Fractures of the humerus in the lower half are best treated by rectangular splints, as in fractures of the elbow. Fractures of the upper end require shoulder-cap, the spica, etc.

Method of Dressing Fractures in Upper End of Humerus.—Fractures of the upper end of the humerus, including fractures of the shaft, surgical and anatomical neck, are dressed, first, by enveloping the limb from hand to shoulder with cotton; second, by bandaging from hand to upper arm; third, by fitting cap to shoulder, and over this carrying the spica bandage. The body of the patient acts as an inside splint, the hollow being filled with a folded towel, and the arm is secured to the side by additional turns of the bandage, the forearm supported in sling.

48. Stiff joint at the shoulder is not liable to occur in extra capsular fracture.

FRACTURE OF THE CLAVICLE.

49. Two methods of dressing a fractured clavicle are worthy of chief consideration. These are: first, for temporary purposes, an ordinary sling, lifting forearm to an acute angle across the breast, with a band passing around the body, confining the arm closely to the side. For a permanent dressing Sayre's method, by adhesive strips, is the most convenient and efficient.

50. Whenever the clavicle is broken at its greatest convexity, and shows the characteristic deformity, perfect apposition is difficult to effect, or to maintain, and deformity will remain to a greater or less degree after union has taken place. It is more likely to be prevented by keeping the patient in a recumbent posture, or by using means to fix the scapula.

51. Fractures of the outer third of the clavicle are frequently overlooked by physicians, the injury being mistaken for a sprain. Displacement is not liable to occur in this situation, and crepitus is difficult to elicit. Wherever, after a fall or other injury, sharp

pain is developed by pressure upon the outer third of the clavicle, fracture at this point is to be suspected.

52. The axillary pad in Fox's apparatus can not be worn with comfort, and is of very doubtful utility.

FRACTURE OF THE RIBS.

53. In fractures of the ribs the jack-towel, or better the roller, is our chief reliance. Adhesive strips or collodion and gauze, over and around the seat of fracture, are generally not practicable, and not always efficient to conquer pain, which is the main thing we are to attack.

FRACTURE OF THE JAW.

54. In fracture of the jaw our chief reliance is in Barton's, Gibson's, or the four-tail bandage, and soft food. Internal apparatus (inter-dental splints or tying the teeth together) practically amounts to little.

FRACTURE OF THE NOSE.

55. In fractures of the nose the main thing is early interference, and reposition of the fragments. Apparatus to keep the bones in place afterward are principally theoretical.

FRACTURE OF THE PELVIS.

56. In fractures of the pelvis our chief reliance is in relaxation of the abdominal muscles, and control of these from spasm from cough, etc. This is best done by the inclined plane and anodynes.

FRACTURES OF THE LOWER EXTREMITIES.

57. The proper dressing for every fracture of the lower extremity is the plastic apparatus.

Method of Making Plastic Apparatus.—In all cases the cotton should come first; next, thread holding it in place till it can be secured evenly by bandages, and on top of this the stiffening material.

Plaster of Paris.—To be fresh, finely ground (dental plaster), and well rubbed into slazy bandages of cheese lining, not more than three yards long, these to be dipped in water and applied in two or three layers over limb.

Flour and Eggs.—Whites to be well separated from fresh eggs, and thoroughly beaten to a froth; sifted flour to be stirred in to make a paste, which is to be rubbed into cotton bandages as they are carried over the limb, in three or four layers.

Starch.—Method of application the same, except it generally requires the addition of splints for proper stiffness.

58. The plastic apparatus in fractures of the lower extremity is not only the best of dressing, but most comfortable to patient and surgeon.

59. Failure or disaster with the plastic apparatus in fractures of the lower extremity has been due generally to its improper application, or to causes which would have operated had it not been used.

60. The chief causes of failure with plastic apparatus have been: first, the absence of cotton as a foundation, or its scant or irregular application; second, unequal pressure of retaining bandages; third, improper material; fourth, neglect to secure the upper joint, especially a neglect of the *spica in fracture of the thigh*.

61. Under the properly applied plastic apparatus, swelling is not liable to occur.

62. In recent fracture, and above all in compound fracture, plaster of Paris is to be preferred in the manufacture of the plastic apparatus. After union has taken place, other materials may be used from consideration of lightness, etc.

63. Plaster of Paris bandages are generally sufficiently firm for their purposes inside of thirty minutes; the flour and egg mixture within twelve hours, with manilla paper somewhat earlier; prepared chalk and gum, oxide of zinc and glue, and starch seldom harden under forty-eight to seventy hours.

64. Particular care should be taken to keep the foot at right angles during the application of the plastic apparatus.

65. In compound fracture it is not necessary, as a general thing, to cut a trap in the apparatus under a week or a fortnight.

66. The "burning heel," which is so apt to come on soon after the application of the plastic apparatus, is best remedied by shifting the position of the limb. It seldom requires a division of the apparatus.

67. The plastic apparatus is to be cut and tied with loop bandages, when from force of circumstances the surgeon cannot watch it, or for swelling or shrinking of limb, otherwise it may pass on to the end unopened.

68. While it is possible for the patient to be moved immediately after the application of the plastic apparatus to the lower extremity, and even for him to go on crutches, he is best in bed during the earlier stages of his treatment.

69. It is possible, but not probable, that fractures of the thigh may heal without shortening.

70. It is most probable that those fractures of the thigh will heal without shortening, which occur in the young, towards the lower end of the shaft, which are dressed under an anesthetic early, by the plastic apparatus, well applied, and carried above the pelvis; nevertheless, fractures even of the upper third in stout adults *may* so heal when dressed as above described.

71. Shortening of the lower extremity under an inch can be concealed by obliquity of pelvis, or by an additional leather or so on the heel.

72. Measurement of the lower limbs from anterior spinus process to malleolus, cannot be accurately done. It is better to put one end of the tape to the umbilicus, and carry it in succession around either foot back to the point of departure. The difference indicated in this manner is twice the difference between the lengths of the limbs.

73. In fractures of the tibia or fibula about ankle, stiffness of this joint for several months is generally inevitable. Use and massage form the treatment.

74. In fractures of the thigh high up there is tendency of bone to bow outward. This may show itself for some time after the union of the bone. If not excessive it generally disappears under the play of the muscles.

75. If extension and counter-extension should be demanded in fractures of the lower extremity, there are but two methods worthy of consideration; one by "Buck's" weight and pulley, the other by Smith's anterior splint, or methods on the same principle.

76. Extension and counter-extension practiced by means of the long splint, perineal bands, etc., are useless. If the force is exerted sufficiently to have any influence on the muscles, the perineal band becomes unbearable. The apparatus speedily becomes disarranged, and requires constant professional supervision. Whatever use the long splint may have, is in correcting somewhat angular deformity.—*Louisville Medical News.*

STRYCHNIA IN COUGH MIXTURES.

Dr. J. Milner Fothergill (London Letter, Philadelphia *Medical Times*, January 19, 1878) concludes that of all the agents which exercise a stimulant effect upon the nervous mechanism of respiration, strychnia is one of the most potent and useful. He says:

"Strychnia acts powerfully upon the expiratory part of the respiratory act, and kills by producing spasm of the muscles connected with expiration. It is very useful, then, when expiratory efforts are required for the expulsion of mucus gathered in the air tubes. In chronic bronchitis, with emphysema, it is of great service, and in the dyspnœa connected with advanced Bright's disease it is very efficacious. It produces good effects when given alone, and is a useful addition to ordinary cough mixtures. A combination of carbonate of ammonium, tincture of nux vomica, and tincture of squills, is a most excellent mixture for patients suffering from dyspnœa, and generally procures them "more breath," as they phrase it. One of the most important matters connected with such use of strychnia is its relation to sleep. In many of these cases sleeplessness is a prominent factor; and sleep can be procured only by a narcotic. But

while the narcotic acts upon the nervous system generally, it also acts upon the respiration, probably at its center in the medulla, and the patients are apt to wake up with an attack of dyspnœa. A series of cases has demonstrated that by the use of strychnia the respiration is so improved that the patient can go to sleep without the narcotic, and, more than that, sleep fairly well, and be quite free from attacks of breathlessness, which awaken the patient and cause him to add voluntary respiratory efforts to the automatic act of respiration. By resort to strychnine these patients can be much relieved. * * * By the use of strychnia during the day, a narcotic pill at bed-time is often deprived of its tendency to produce nocturnal dyspnœa; and strychnia may be usefully prescribed in cases of shortness of breath, where there has been also long indulgence in hypnotics. There is no such thing in this world as unalloyed good, and strychnia, so used, sometimes acts so powerfully upon the bladder-centres, and produces such irritation there as to necessitate its discontinuance. But this is not the rule by any means."—*St. Louis Clinical Record.*

ERB ON SPASMODIC SPINAL PARALYSIS IN INFANTS.

Professor Erb, of Heidelberg, remarks (*Betz's Memorabilien*, vol. xxii., pt. 12) that spasmodic spinal paralysis in infants is more frequent than is usually supposed, and is often misunderstood. It is frequently regarded as of cerebral origin, or as connected with cerebral derangements of childhood; an error to be avoided without difficulty by accurate observation. Symptoms of spasmodic spinal paralysis of the arm, and distortion of the face, and coexistent with strabismus, unquestionably point to a cerebral origin. More rarely is it confounded with atrophic spinal paralysis, complicated with previous paralysis (tabes dorsalis proper) which is characterized by its sudden onset, by marked atrophy, by shortcoming and deformity of the limbs, and by the absence of reflex and galvanic irritability. The affection is developed slowly and insidiously, without convulsive or apoplectic symptoms. The legs are moved with difficulty, they are clumsy and stiff, and retained by the tense or contracted muscles in certain fixed positions. Usually the child cannot walk at all, but yet can, when lying down, move the legs though with some difficulty. If the child be supported under the arms, attempts at walking are made, but the thighs are closely pressed together, the knees slightly bent, the feet stretched out, so that only the points of the toes touch the ground, and in progression the feet are constantly crossed and stumble one over the other, or, in slighter cases, are dragged along the ground. Standing still is usually possible without difficulty, with some support. The skin is normally sensible, as also the reflex sensibility; the feet are mostly cold. The upper

extremities are generally unaffected, likewise the brain and cerebral nerves. The intellect, speech, and movements of the eye are perfectly normal. The general health and nutrition are usually good, and there is an entire absence of atrophy. Dr. Erb describes two typical cases of children under five years of age presenting the above symptoms. In both there was total inability to walk, and the peculiar and characteristic position of the thighs and feet was strongly marked, and there was also some difficulty and indistinctness of speech—while both seemed otherwise in perfect health. Both presented a close resemblance to the locomotor ataxy of adults, and hence the treatment indicated in the first instance was the use of galvanism and cold water applications. But further experience and long continued observations are needed to clear up the course and nature of these cases.—*London Medical Record.*

DAWOSKY ON THE TREATMENT OF CHRONIC THROAT-CATARRH WITH NITRATE OF SILVER.

Dr. Dawosky lays down the proposition (*Betz's Memorabilien*, vol. xxii., part 12), that in the treatment of diseases of mucous membranes, where external applications are possible, nitrate of silver is a remedy useful before all others. Brought into contact with a mucous surface, it coagulates the mucus; and if applied in excess, it unites chemically with the tissue of the membrane beneath, forming a more or less thick crust. If the nitrate be applied to an actively secreting mucous membrane, it first irritates the distended blood-vessels and capillaries, and also stimulates their contractility, so that they unload themselves and cause an onward flow of the blood accumulated in them. Hence it becomes necessary to the efficient use of nitrate of silver to form an accurate estimate of the quantity to be applied in each case, and also that it should be applied by the physician himself. In chronic throat catarrh, we have a congested condition of the mucous membrane, and a consequent abundant secretion, with swelling and redness occurring in unequally distributed patches. If these patches become denuded of epithelium, they appear yet more deeply reddened. In such cases, the nitrate should not be applied otherwise than in a solution of definite strength. It is convenient to have a concentrated solution, which may then be diluted with water or glycerine. After applying it with a brush to the affected parts, these should be painted over with a solution of glycerine, and the application is repeated so long as there is any swelling, unhealthy secretion, etc. At the same time, the food and drink taken should be cold, and smoking discontinued. Should the larynx be also affected, it should be brushed with the caustic solution, of a strength of 1 to 8, repeated three or four times a day. A large number of cases of laryngeal cararrh

thus treated, have uniformly yielded the best results.—W. J. Treutler, M.B., in *London Medical Record.*

AYER ON THE BROWN-SEQUARD TREATMENT OF EPILEPSY.

In a paper in the *Boston Medical and Surgical Journal* for December 27, 1877, Dr. James D. Ayer records the results of systematic treatment in twelve cases.

The following prescription (occasionally slightly modified) was used in each case.

℞—Sodii bromidi, iodi bromidi, ammonii bromidi, aa ʒiij.; potassii iodidi, ammonii iodidi, aa ʒiss; ammoniæ sesquicarbonatis, ʒi.; tincturæ calumbæ, fʒiss.; aque destillatæ, ad fʒviij. M.

The full dose was one and a half drachms before each meal, and three drachms at bed-time. The patients were informed at the outset that regular treatment would continue two years, at the end of which time the dose would be left, in a measure to their discretion, full treatment, except for averting threatened attacks, being no longer advisable.

Six of the patients took, during more than half the treatment, drachm doses of the following mixture after each meal.

℞—Strychniæ sulphatis, gr. i.; acidi sulphurici dilute, ♏x.; aquæ destillatæ, ʒiv. M.

To others strychnia was given in smaller doses and for a shorter period.

In all cases the diet was carefully regulated; coffee and tea were allowed in moderation; alcohol and tobacco were prohibited as far as possible. Healthy mental occupation and amusements, out-of-door exercise, and regular hours of sleep were insisted on, while everything of an exciting character was forbidden.

The result in four cases was very satisfactory, the disease being reduced to a single attack in forty-six months, thirty-one months, twenty-two months, and sixteen months respectively. In five cases, the number and severity of attacks were both diminished, but the number of attacks was unchanged. In two cases there was no change in number or in severity. In eleven cases there was *marked* improvement in general health and mental condition. In one case there was a *slight* improvement.—*London Medical Record.*

PERNOT ON THE TREATMENT OF WHOOPING COUGH BY CARBOLATE OF SODA.

Dr. Pernot considers carbolate of soda as a specific for whooping cough. He writes in the *Lyon Médical* (1877) that it is an

heroic remedy, and would be almost a specific if whooping cough could be cured at once. His cases have been numerous, and have presented the following general characteristics: 1. A notable diminution of the paroxysms of coughing after from two to ten days' treatment; 2. Less labored and painful respiration; 3. Shorter duration of the paroxysms of coughing. Finally, the most confirmed attack of whooping cough remains *in statu quo* from the commencement of the treatment, gradually and quickly lessening in intensity. Dr. Pernot states that, in all the cases which came under his observation, he never saw the whooping cough increase after treatment, and it always appeared to him to diminish more or less rapidly, but always in a time relatively short to its usual duration. Dr. Pernot operates in nervous affections of the bronchi in the following manner. He places the carbolate of soda in a small porcelain crucible held above the flame of a spirit-lamp, which keeps it in an unvarying temperature as long as wished; the carbolate of soda becomes volatilised, so that scarcely any of it remains in the crucible, but the atmosphere of the sick room is impregnated with the vapor of carbolic acid mixed with the elements of coal-tar. The little apparatus above described is not always at hand, but a fire-brick is generally to be had, either in town or country, and this, heated to a sufficiently high temperature to vaporise the carbolate of soda, is generally employed by M. Pernot. He also speaks very highly of the disinfecting and antiseptic properties of these vapors of carbolate of soda. M. Dujardin-Beaumetz states that, when the carbolate of soda was tried in the children's wards of the Hospital St. Antoine, although the results in whooping cough were not quite so rapid as those obtained by M. Pernot, it acted very thoroughly in the disinfection of the wards.—*London Medical Record.*

DR. FORDYCE BARKER.

The Board of Trustees of Columbia College did a graceful thing, which will cause great satisfaction in many and widely different circles. They conferred the degree of LL.D. upon Professor Barker by a unanimous vote. It is so rarely that such an honor is so deservedly conferred, that the profession at large can take it as a general compliment.—*The Medical Record.*

ACUTE BRIGHT'S DISEASE CURED BY JABORANDI.

Prof. J. M. DaCosta, in the *Hospital Gazette*, publishes a clinical lecture, in the course of which he records a case of acute

nephritis cured by this drug. The fluid extract of jaborandi was used in drachm doses three times daily. This dose produced excessive diuresis and diaphoresis. At the expiration of five days all symptoms of the disease had disappeared. The woman was left in an extremely prostrated condition, to counteract which *dialyzed* iron was administered both internally and hypodermically.

BLOODLESS TRACHEOTOMY.

The *Lancet* of March 23d contains an account of a case where tracheotomy was performed without the loss of a drop of blood until the trachea was opened with a knife. All tissues anterior to the trachea were divided with Paquelin's thermo-cautery, at a dull red heat.

DEATH FROM FRIGHT.

The *British Medical Journal* records such a death. An injured woman was carried to a house in the neighborhood, and the hostess received such a shock that she died shortly afterwards from fright.

ARE THERE SPINAL RESPIRATORY CENTRES?

B. F. Lautenbach, M.D., Ph.D., contributes an article in the *Medical Times* answering this question affirmatively. The conclusion arrived at by Dr. L. is that, "besides the respiratory centre or centres in the medulla oblongata, there exists in the spinal cord nervous mechanisms which may keep up the respiratory movements after the destruction of the former."

RUSSIAN SOLDIERS' BREAD.

An analysis of the bread issued to Russian troops in Bulgaria showed that it contained nineteen per cent. of sawdust, and fourteen per cent. of sand.—*Exchange.*

LOCAL APPLICATION OF CHLORAL HYDRATE IN TETANUS.

Dr. Bigelow reports in the *Practitioner* a case of tetanus caused

by a rusty nail in the foot, which was relieved in thirty minutes by introducing a drachm of chloral hydrate into the wound after it had been enlarged by incision.—*Canadian Journal of Medical Science.*

EXTIRPATION OF THE SPLEEN.

This operation has been done for traumatic cases about 20 times—all successful. Eighteen operations have been done because of pathological changes in the organ, twelve of which have been fatal.—*The Hospital Gazette.*

USE OF CAPSICUM WITH QUINIA.

Prof. W. H. Thompson says that either capsicum, ginger or other aromatics, combined with quinia, will diminish the amount required of the latter.—*Maryland Medical Journal.*

THE TREATMENT OF ULCERS.

According to Dr. Mandelbaum, of Odessa (*Berl. Klin. Wochenschrift*, No. 10, 1878), all ulcers of the leg and elsewhere, whatever their character, age and extent, can be cured by the following method. If they are very deep, with much loss of tissue and with undermined, uneven, callous edges, they are first to be scraped away until healthy tissue is reached, with the modification of Volkmann's spoon as suggested by Hebra; they are then to be covered for several days with a thick layer of iodoform until fresh granulations spring up (as they are certain to do), and until the base of the ulcer has reached the level of the surrounding skin. When this point in the healing process is reached, the ulcer is to be strapped daily with equal parts of mercurial and soap plaster of rather soft consistence, and carefully and evenly applied. Shallow ulcers which are only covered with a thick layer of pus require no preliminary scraping, and can be at once treated with iodoform, and later on strapped as above described.—*Med. Times and Gaz.*, April 6, 1878.

DIFFERENTIAL DIAGNOSIS OF PLEURITIC EXUDATIONS.

According to the observations of Professor Baccelli, of Rome (*Berlin Klinische Wochenschrift*, 1877), if, while the ear is kept exactly applied to the walls of the chest, the patient is made to pronounce the word "trenta-tre," almost in the same manner as

he would the number "trente-trois," the following facts will be elicited:

1. The word is clearly heard (even if pronounced in a loud tone) if the pleura contains a large quantity of clear serum, rich, however, in albumen.

2. That this same transmission of the sound is only slightly impeded by the presence of inflammatory effusion which is rich in fibrine.

3. That the word is no longer audible if there is an abundant exudation of sanguineous or purulent fluid.—*Medical and Surgical Reporter.*

A NEW OPERATION FOR FRACTURE OF THE PATELLA.

In a case of transverse fracture of the patella, Mr. Lister cut down on the fragments, opening the knee-joint, cleansed the surfaces of the fragments, and, having established an independent drain of horse-hair for the knee-joint, drilled the two portions of the patella and tied the fragments together with silver wire, and then closed the wound, which was also drained with horse-hair.

This operation was performed six weeks ago; the wound, as exposed to-day, was seen to be completely healed, the ends of the silver wire projecting through the scar. The highest temperature that had occurred was 100 degrees Fahr., on the morning after the operation. There has been no disturbance, constitutional or local, and both the wounds healed in about a fortnight.

The limb will be kept at rest for another fortnight, when, if union have taken place, the wires will be withdrawn.—*Canadian Journal of Medical Science.*

(From *L'Union Medicale.*)

ON FORCED DILATATION OF THE SPHINCTER ANI.

Considered specially in its application to the treatment of hæmorrhoids.

BY F. MONOD.

We append the concluding remarks of the French reviewer of this inaugural thesis, Paris, 1877.

"Dilatation is not applicable to all cases without distinction. The author enumerates certain contra-indications; he insists upon hæmarrhage as the principal indication, and shows how the sufferer from hæmorrhoids who, from daily fluxes, has reached the last stage of hecticity, may be immediately restored by a simple and harmless operation; lastly, he reports eleven cases which serve him as *pieces justificatives.* The last pages are

devoted to a summary study of some other applications of forced dilatation. Among the conclusions which terminate this excellent work, I shall limit myself to transcribing the following:

3d. Hæmorrhoids, once established, produce, by reflex action, a more or less violent contraction of the sphincters of the anus, painful or otherwise, and most frequently permanent.

4th. This contraction, playing a chief part in the subsequent development of internal hæmorrhoids, and in the production of those accidents which follow their prolapse (strangulation, hæmorrhages, irreducibility), forced dilatation of the sphincter is presented as the most rational means of cure.

5th. This rational treatment is found to be at the same time the most simple, and the most harmless, of all those that have been proposed; it can scarcely be called an operation.

6th. It is formally indicated in all cases in which there occurs an abundant sanguinary loss.

8th. In view of thirty cases, already known, in which the forced dilatation, without giving rise to any serious accident, has invariably produced either a radical cure, or a notable amelioration, there is no temerity in assuming that this excellent method will rapidly pass into the domain of every-day surgery, and will one day become the most generally applicable treatment for hæmorrhoids.—*L. Gustave Richelot.*

PRIORITY OF THE METHOD OF SUSPENSION IN THE TREATMENT OF SPINAL DISEASES.

Dr. C. T. Hunter, of Philadelphia, sends the following note to Dr. L. A. Sayre, of this city. For the present, and perhaps until Hippocrates or Galen are heard from, a very important question of priority seems to be settled:

"My Dear Doctor:—When your son was here, two or three weeks ago, I told him that Dr. Ashhurst had found a reference to suspension of the body in spinal disease, and I promised to send it to you as soon as I should be able to find it. The book is entitled 'A Treatise of the Rickets: being a Disease common to Children, wherein (among many other things) is showed: 1 the Essence, 2 the Cause, 3 the Signs, 4 the Remedies of the Disease.' By Francis Glisson, George Bate, and Ahasuerus Regemarter, Fellows of the College of Physicians, London. Printed by John Streater in 1668.

"I enclose a copy of the extract, as I don't think that you will be able to find the book in New York.

"*Extract from Glisson on Rickets, p.* 363. 'The artificial suspension of the Body is performed by the help of an Instrument cunningly made with Swathing-Bands, first crossing the Breast and coming under the armpits, then about the Head and under the Chin, and then receiving the Hands by two handles, so that

it is a pleasure to see the Child hanging pendulous in the Air, and moved to and fro by the spectators. This kind of Exercise is thought to be many waies (ways) conducible in this Affect, for it helpeth to restore the Crooked Bones, to erect the bended Joynts, and to lengthen the short Stature of the Body. Moreover, it exciteth the vital Heat, and withal alureth a plentiful distribution of the Nourishment to the external and first affected parts; and in the meantime it is rather a pleasure than a trouble to the Child. Some, that the parts may the more be stretched, hang Leaden Shooes upon the Feet, and fasten weights to the Body, that the parts may the more easily be extended to an equal length. But this exercise is only proper for those that are strong.'

"This work on Rickets belongs to the Pennsylvania Hospital Library."—*The Medical Record.*

PREGNANCY AT EIGHT YEARS.

The *Gazette Hebdomadaire* reports a case of extraordinary precocity in a girl eight years of age. She was born fully developed, and had hair on the pubes, menstruated at four years of age, and was seduced and became pregnant at eight. The pregnancy resulted in a mole containing a well-characterized embryo. The hopeful father had seen thirteen summers.

NORMAL LABOR DURING EXTRA-UTERINE PREGNANCY.

In the *Journal de Medicine*, Nov. 1877, M. Labatut reports the following case. A woman had had a previous normal labor, and two years later, had all the signs of pregnancy. At the end of five months, after progressive development of the abdomen, she had violent pains, but without result. After their cessation, she was sick for six months. Menstruation then reappeared, and the patient enjoyed tolerable health. The tumor subsided, the pains disappeared. Five years later, the catamenia were again suppressed. After several months, she was examined by a midwife of Toulon, Madame Rampin, who diagnosed pregnancy at the ninth month. She detected also a voluminous tumor in the right ride, which, after hearing the patient's history, she attributed to an extra-uterine pregnancy. Fifteen days after this, the patient was naturally delivered of a living child. She lived two years, and died at Toulon Hospital, of pulmonary tuberculosis. At the necropsy, there was found in the right Fallopian tube a fœtus at term, and enveloped in a thick pouch. The case was then one of tubal pregnancy, dating

back five years. Notwithstanding this, there had been normal conception and delivery.—*London Medical Record*, Feb. 15th, 1878.—*American Journal of the Medical Sciences.*

THYMOL.

The essential oils of thyme, of American horsemint, and of the *Ptychosis ajowan* contain a substance, a homologue of phenol or carbolic acid, having the composition represented by C_{10}, H_{14} O, and known as thymol. For more than two years this has been used by German surgeons, and is now being introduced into practice generally. It was discovered in 1719 by Caspar Naumann, examined chemically by Lallemand and Leonard Doveri, and first used to deodorize unhealthy wounds by Bouillon and Paquet of Lille, in 1868. In 1875 several German surgeons published investigations of its antiseptic properties, which are estimated to be from four to twenty-five times as powerful under certain circumstances as those of carbolic acid. Thymol is a crystaline nearly colorless body with a pleasant odor, and an aromatic burning taste. It dissolves in cold water, rectified spirits, glycerine, caustic alkalies, fats and oils. Its powerful antiseptic action, exceeding under some conditions that of carbolic acid; its small activity as a poison being about one-tenth that of carbolic acid, and the absence of irritating effect when it is applied to the skin, all point to its use as a substitute for carbolic acid in the antiseptic treatment of surgical cases. Professor Volkmann of Halle uses for the spray solution, one part thymol, 10 of alcohol, 20 of glycerine, and 1000 of water. A prepared gauze, which is extremely soft and pliant, which will remove the blood and secretions from a wound like a sponge, is made as follows: 1000 parts of bleached gauze, 500 parts of spermaciti, 50 parts resin and 16 of thymol. The fibres of the gauze being impregnated with spermaciti so that they do not become stiff. Thymol has been used for various cutaneous diseases. It has proven useful in certain conditions of the stomach, accompanied by fermentation. Mr. Stone has reported in the *Medical Times and Gazette* cases of chorea, which were treated successfully by thymol.—*Chemist and Druggist.*

NASO-PHARYNGEAL POLYPUS REMOVED BY SAWING DOWN AND DEPRESSING THE NOSE.

Dr. David W. Cheever, in a clinical lecture published in the *Boston Medical and Surgical Journal*, contributes the following

history of a case of this affection, and graphically describes the operation for its removal.

'Gentlemen—The rare and interesting case I now bring before you is a boy, fifteen years of age. Symptoms of obstruction of the right nostril and pharynx have been present over a year. Eight months previously a pear-shaped fibroid polypus was removed by Dr. Mason, of Providence, by means of a looped ligature passed through the nose. The tumor soon reappeared. It can now be seen hanging down behind the soft palate. It nearly fills the pharynx, and the right nostril is obstructed. I have decided to attempt its removal by Ollier's operation, in preference to either Langenbeck's operation or my own, which is done by displacing the jaw.

"*Operation.* The patient was etherized. Starting at the root of the nose, over the frontal bone, midway between the eyes, an incision was made downward and outward by the side of the nose to the alar cartilage. A similar cut was made on the other side, both incisions reaching the bone. The blade of a small, straight saw was then laid flat on the forehead, and the nasal bones and vomer were sawed through down to the alar cartilages. The nose was now easily upset, and turned down upon the mouth. Next, the vomer was broken and bent by the finger over to the left side, and the inferior turbinated bone was cut away with bone forceps. There was now room enough in the left side of the nares to reach the tumor with the finger. It was found to be attached by a broad root to the bodies of the sphenoid and the right palate bones. It was scraped off the bones by the periosteum scraper. Aided by the finger in the mouth it was delivered whole, and proved to be an oval fibroid, as large as a pullet's egg. The surface from which it grew was touched with nitric acid.

"The nose was now replaced, and the nasal bones were wired to the face by two wire sutures; the skin being carefully readjusted with one wire and seven silk sutures. It fitted perfectly. The nose was still farther supported by a horizontal strip of adhesive plaster.

* * * * * * *

'November 20th. No discharge. Excellent result. Nose straight and perfect. Two linear scars on either side. Nares and throat clear and well. Voice normal."

TREATMENT OF GOITRE BY INTERSTITIAL INJECTIONS.

In an article published in the *Annales des maladies du larynx et des oreilles*, M. Cazalis reviews the different modes of treating goitre, and especially the method of Lutton. This method, more especially applicable to parenchymatous and fibrous goitres, con-

sists in carrying the iodine to the very heart of the tumor. By this means Dr. Lutton has frequently obtained cures in cases rebellious to medical treatment. The ordinary hypodermic syringe is used, but a gilt or nickel-plated one is preferred, and the piston must fit accurately to overcome the resistance the liquid sometimes meets with in the gland. Either the officinal tincture of iodine may be employed, as used by Lutton, in doses of one gramme to five grammes, or the iodurretted solution of iodine of Bertin, in doses from fifteen drops to forty drops. The needle of the syringe should be introduced about two or three centimetres, to insure the penetration of the fluid only into the gland. Lévêque advises the unscrewing of the syringe after the introduction of the needle, to ascertain, by the flow of blood, whether or not any important vessel has been entered. The dose of liquid is variable; Lutton employed from fifteen drops to four and five grammes. The subsequent symptoms vary with the strength and amount of solution used. Some solutions, or some small doses, cause only a sensation of uneasiness, or a slight pain in the region of the neck. Stronger injections give rise to pain radiating towards the chin and ears. Occasionally some inflammatory symptoms may be observed, the pulse and temperature rise, the neck swells and becomes tense, but the inflammation usually subsides by the second or third day, and there is felt within the substance of the gland a hard nodule about the size of a pigeon's egg, which contracts little by little and diminishes with the gland. Heller, to reduce the pain and irritation, added fifteen milligrammes of the sulphate of morphia to his injection. Suppuration is rare, but is to be feared if too large an injection, or too caustic a solution has been used, or if the liquid escapes into the surrounding cellular tissue. This method usually gives more rapid results than the medical treatment, but several months are sometimes necessary to obtain these well-defined results. Morell Mackenzie, who has had a large experience of this plan, repeats the injection about every ten days. Lutton met with but one case he could not treat by this plan; that was a vascular goitre. Mackenzie, out of seventy-three cases treated in this manner, cured fifty-nine, diminished the size in nine, got no results in three, and two patients gave up treatment.—*Journal de Médecine*, and *The Medical Record*, February 23, 1878.

PROF. FRANCIS GURNEY SMITH.

Dr. Francis Gurney Smith died in his native city, Philadelphia, on April 13th, aged 60 years. He graduated in medicine in 1840, and has for years occupied a prominent place in the profession. As an author, compiler and translator, he has been long and favorably known.

DEATH'S DOINGS IN THE PROFESSION.

Jean-Bart Philip Barsto died at Paris, December 3d, 1877, aged 72 years. The work on Auscultation and Percussion, written in conjunction with M. Henri Roger, was his principal work, and gained for him an enviable reputation.

Professor Henry, of the Smithsonian Institute, died May, 1878. He had devoted his whole life to science. A short time since he was presented with a purse of $40,000 by his friends.

Dr. C. A. Wunderlich, Professor in the University of Leipzig, and extensively and favorably known as a writer on Therapeutics and Pathology, died on the 25th of September, 1877, aged 62 years.

Dr. Wm. Stokes, the eminent Irish physician, whose writings are known the world over, died in Dublin on the 7th of January, aged 74 years.

REVIEWS AND BOOK NOTICES.

State Regulation of Vice. Regulation Efforts in America. The Geneva Congress. By Aaron M. Powell. New York: Wood & Holbrook, Publishers.

The writer looks upon the scheme to license or regulate social vice as one of the bad influences brought to America from the old world. The book is devoted to that view of the subject which is usually taken by exponents of theology, and the author labors very successfully, having wrong premises, in sustaining his side. The book is useful as showing what has been attempted in regard to State regulation of the social evil, but every reader will determine that the views expressed are not those of the broad philanthropist, but rather of the professional bigot.

EDITORIAL.

Dr. Cowling's Address.

In a former number of the JOURNAL a synopsis of Dr. Cowling's address was published. We now reproduce it in full. Containing, as it does, so many valuable hints to the surgeon in

the treatment of fractures, it cannot fail to be well received by our readers.

The Journal

This number completes Volume V. of the New Series. We feel fully justified in promising further progress and improvement in the future. We hope that we will continue to receive substantial encouragement and increase in the number of our subscribers and contributors.

Orleans Parish Medical Association.

Under this title a number of medical gentlemen have organized a society, which is to be affiliated with the State Medical Association. The President is Dr. Turpin, and the Vice Presidents are Drs. S. S. Herrick, Ernest Lewis, and J. P. Davidson. The secretaries are Drs. A. B. Miles, Recording Secretary, and D. Jamison, Corresponding Secretary. The meetings are to be held on the last Monday of every month, in the Society room of the University Building, corner Baronne and Common streets.

American Medical Association.

At the coming meeting of this congress there will very probably be a movement made to change the mode of electing the president. We fully approve the change which is suggested. Let the choice of president come from the whole body—let the nomination be made in open meeting, by any delegate present, at an hour previously fixed and published so that none shall be taken unawares. Let the election be made without any dictation from a nominating committee, or any previous arrangement looking to selfish and private interests rather than those of the profession at large. Under this arrangement, the failure of pet plans cannot be ascribed to the chairman of a nominating committee. Let the president makers, in future, be obliged to appear in open meeting and back up their favorites on the field. It might also be suggested that when they lose, good breeding ought to dictate polite acquiescence in the choice made in this manner. As for us, we have hoped the day was close at hand when the man who has done more for American medical litera-

ture, and American medicine, than any other, would receive this mark of commendation by a spontaneous action on the part of the American Medical Association.

A New Obstetrical Journal.

Our worthy friend, Dr. E. B. Stevens, of Cincinnati, proposes to publish a monthly journal of 48 pages, to be styled the "Obstetrical Gazette," and the first issue to appear in July. The subscription price is Three Dollars a year, and remittances should be sent to his address.

NECROLOGY.

Dr. Leonce P. Guyol.

PLAQUEMINES PARISH MED. AND SURG. ASS.,
PLAQUEMINES PARISH, LA., May 10th, 1878.

Extract from Minutes of May 7th, 1878.

"*Resolved*, That in view of the death of Dr. LEONCE P. GUYOL, at Pilot Town, S. W. Pass, May 5th, 1878, this Association has lost one of its original members, the profession at large one of its young, active and promising co-laborers in the cause of science, and the citizens of Pilot Town a faithful and attentive physician, who, by his warm-hearted, generous nature, had endeared himself to those around him.

"*Resolved*, That while we are called upon to mourn his loss, and for all time will miss his pleasant smile and genial presence from among us at our reunions, and may never more hear his frank and cheery voice, we bow to the inscrutable decrees of Providence 'who doeth all things well.'

"*Resolved*, That a page of our minutes be left blank and dedicated to his memory, and a copy of these resolutions be forwarded to his family, with whom we sympathize most deeply in their great bereavement.

"*Resolved*, That a copy of these resolutions be published in the N. O. Medical and Surgical Journal, Plaquemines 'Observer,' N. O. Democrat and Picayune."

C. P. WILKINSON, M.D.,
GEO. A. B. HAYS, M.D.,
Committee.

METEOROLOGICAL AND MORTALITY REPORTS.

Meteorological Report for New Orleans—April.

Day of Month.	Temperature.			Mean Barometer Daily.	Relative Humidity—Daily.	Rain fall—inches
	Maximum.	Minimum.	Range.			
1	70	61	9	29 917	70.	.13
2	68	61	7	29 813	55.7	.00
3	74	57	17	29.728	52.3	.00
4	65	50	15	29.894	41.0	.00
5	72	51	21	29.964	48.3	.00
6	77	58	19	29.853	67 7	.00
7	72	59	13	29.825	80.7	.00
8	73	65	8	29.525	83.3	.38
9	81	66	15	29.657	77.3	.00
10	83	66	17	29.837	73.7	.00
11	77	67	10	29.940	49.7	.00
12	78	58	20	29.924	55.7	.00
13	81	61	20	29 792	75.0	.00
14	84	69	15	29.700	75.0	.00
15	84	72	12	29.705	82.3	.15
16	80	71	9	29.827	74.7	.00
17	80	65	15	29.851	81.3	.12
18	84	73	11	29.926	79.7	.00
19	82	73	9	30.002	79.0	.00
20	80	69	11	29.977	79.0	.00
21	81	68	13	29 931	83 0	.08
22	79	72	7	29.823	84.7	.00
23	80	73	7	29.693	83.3	.77
24	76	64	12	29.882	59.7	.00
25	81	63	18	29.903	60.7	.00
26	81	66	15	29.897	55.3	.00
27	83	66	17	29.923	58 3	.00
28	82	66	16	29.883	65.0	.00
29	77	76	1	29.890	63.0	.00
30	81	65	16	29.985	64.7	.00
Mean..	78.2	65.0	13.2	29.842	68.0	Total. 1.73

Mortality in New Orleans from April 22d, 1878, to May 19th, 1878, inclusive.

Week Ending	Yellow Fever.	Malarial Fevers.	Consumption.	Small-Pox,	Pneumonia.	Total Mortality.
April 28.....	0	6	10	4	7	116
May 5.....	0	4	19	3	6	99
May 12.....	0	2	15	3	4	96
May 19.....	0	6	17	3	5	109
Totals.....	0	18	61	13	22	420

PURE COD-LIVER OIL,

Manufactured on the Sea-Shore by HAZARD & CASWELL, from Fresh and Selected Livers.

The universal demand for Cod Liver Oil that can be depended upon as strictly pure and scientifically prepared, having been long felt by the Medical Profession, we were induced to undertake its manufacture at the Fishing Stations, where the fish are brought to land every few hours, and the Livers consequently are in great perfection.

This Oil is manufactured by us on the sea-shore, with the greatest care, from fresh, healthy Livers, of the Cod only, without the aid of any chemicals, by the simplest possible process and lowest temperature by which the Oil can be separated from the cells of the Livers. It is nearly devoid of color, odor and flavor—having a bland, fish-like, and, to most persons, not unpleasant taste. It is so sweet and pure that it can be retained by the stomach when other kinds fail, and patients soon become fond of it.

The secret of making good Cod-Liver Oil lies in the proper application of the proper degree of heat; too much or too little will seriously injure the quality. Great attention to cleanliness is absolutely necessary to produce sweet Cod-Liver Oil. The rancid Oil found in the market is the make of manufacturers who are careless about these matters.

PROF. PARKER, of N. Y. says: "I have tried almost every other manufacturer's Oil, and give yours the decided preference."

PROF. HAYS, State Assayer of Massachussetts, after a full analysis of it, says; "It is the best for foreign or domestic use."

After years of experimenting, the Medical Profession of Europe and America, who have studied the effects of different Cod-Liver Oils, have unanimously decided the light straw-colored Cod-Liver Oil to be far superior to any of the brown Oils.

The Three best Tonics of the Pharmacopœia: IRON—PHOSPHORUS—CALISAYA.

CASWELL, HAZARD & CO. also call the attention of the Profession to their preparation of the above estimable Tonics, as combined in their elegant and palatable **Ferro-Phosphorated Elixir of Calisaya Bark,** a combination of the Pyrophosphate of Iron and Calisaya never before attained, in which the nauseous inkiness of the iron and astringency of the Calisaya are overcome, without any injury to their active tonic principles, and blended into a beautiful Amber-colored Cordial, delicious to the taste, and acceptable to the most delicate stomach. This preparation is made directly from the **ROYAL CALISAYA BARK,** not from **ITS ALKALOIDS OR THEIR SALTS**—being unlike other preparations called "Elixir of Calisaya and Iron," which are simply an **Elixir of Quinine and Iron.** Our Elixir can be depended upon as being a true Elixir of Calisaya Bark with Iron. Each dessert-spoonful contains seven and a half grains Royal Calisaya Bark, and two grains Pyrophosphate of Iron.

Ferro-Phosphorated Elixir of Calisaya Bark with Strychnia. This preparation contains one grain of Strychnia added to each pint of our Ferro-Phosphorated Elixir of Calisaya Bark, greatly intensifying its tonic effect.

Ferro-Phosphorated Elixir of Calisaya with Bismuth, containing eight grains Ammonio-Citrate of Bismuth in each table-spoonful of the Ferro-Phosphorated Elixir of Calisaya Bark.

Elixir Phosphate Iron, Quinine and Strychnia. Each tea-spoonful contains one grain Phosphate Iron, one grain Phosphate Quinine, and one sixty-fourth of a grain of Strychnia.

Ferro-Phosphorated Elixir of Gentian, containing one ounce of Gentian, and one hundred and twenty-eight grains Pyrophosphate of Iron to the pint, making in each dessert-spoonful seven and one-half grains Gentian and two grains Pyrophosphate Iron.

Elixir Valerianate of Ammonia. Each tea-spoonful contains two grains Valerianate Ammonia.

Elixir Valerianate of Ammonia and Quinine. Each tea-spoonful contains two grains Valerianate Ammonia and one grain Quinine.

Ferro-Phosphorated Wine of Wild Cherry Bark. Each fluid-drachm contains twenty-five grains of the Bark, and two grains of Ferri-Pyrophosphate.

Wine of Pepsin. This article is prepared by us from fresh Rennets and pure Cherry Wine.

ELIXIR TARAXACUM COMP. Each dessert-spoonful contains fifteen grains of Taraxacum.

ELIXIR PEPSIN, BISMUTH AND STRYCHNINE. Each fluid-drachm contains one sixty-fourth of a grain of Strychnine.

JUNIPER TAR SOAP. Highly recommended by the celebrated Erasmus Wilson, and has been found very serviceable in chronic eczema and diseases of the skin generally. It is invaluable for chapped hands and for roughness of the skin caused by change of temperature. It is manufactured by ourselves, from the purest materials, and is extensively and successfully prescribed by the most eminent Physicians.

IODO-FERRATED COD-LIVER OIL. This combination holds sixteen grains Iodide of Iron to the ounce of our pure Cod-Liver Oil.

COD-LIVER OIL, WITH IODINE, PHOSPHORUS AND BROMINE. This combination represents Phosphorus, Bromine, Iodine and Cod-Liver Oil, in a state of permanent combination, containing in each pint: Iodine, eight grains; Bromine, one grain; Phosphorus one grain; Cod-Liver Oil, one pint.

COD-LIVER OIL, WITH PHOSPHATE OF LIME. This is an agreeable emulsion, holding three grains Phosphate of Lime in each table-spoonful.

COD-LIVER OIL WITH LACTO-PHOSPHATE OF LIME.

CASWELL, HAZARD & CO.,
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Important To Physicians!

American Mutual Benefit Association of Physicians.

Office, 118 West Main St., Louisville, Ky.

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This Association is now in full and active operation, under a liberal charter by the Legislature of Kentucky, and offers very great and special advantages to all physicians and their families throughout the United States.

The object of the Association is, in the event of the death of a physician, or any of his family who may become members, to secure to the survivors, at a cost very far less than that required for securing the payment of an equal amount, by investing in any of the Life Insurance, Real Estate, or stock companies of the country. For information, circulars and blank applications for membership, address

HOWARD W. HUNTER, Sec. and Treas.
118 *West Main Street, Louisville, Ky.*

Or, J. TYLER READ, Agent,
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HIGHER MEDICAL INSTRUCTION IN THE UNIVERSITY OF PENNSYLVANIA.

Three Winter Courses of Five Months required. Beside instruction of each student in Physical Diagnosis, Clinical Medicine and Surgery, Gynæcology, etc. Laboratory teaching in Pharmacy, General and Medical Chemistry, Histology, and Morbid Anatomy. Extensive Laboratory and Clinical facilities.

For particulars, see Announcement, for which address

JAMES TYSON, M.D.,
Secretary of the Medical Faculty,
University of Pennsylvania
P. O. Box 2838. Philadelphia, Pa.

jy—sep—nov 77

MIAMI MEDICAL COLLEGE

OF CINCINNATI.

The next Session will begin October 3, 1877, with Preliminary Course from September 13th. The College is well supplied with means for demonstrative teaching, having large museums, a students' laboratory, microscopes, etc.

The Clinical advantages are superior. Two large Dispensaries being under the exclusive care of the Faculty, and daily lectures in the largest Hospital of the West.

FEES $45.

The Recitation Course will commence March 15, 1878.

FACULTY.—John A. Murphy, M.D., Dean; Wm. H. Mussey, M.D.; E. Williams, M.D.; Wm. Clendenin, M.D.; Wm. H. Taylor, M.D.; T. H. Kearney, M.D.; J. C. MacKenzie, M.D.; J. B. Hough, M.D.; W. B. Davis, M.D.; Byron Stanton, M.D.

For circulars, etc., address

JOHN A. MURPHY, M.D., Dean, 163 West Seventh St., or
WM. H. TAYLOR, M.D., Secretary, 329 West Seventh St.

Jy.—Sep.—Nov.

WYETH'S DIALYSED IRON.

(FERRUM DIALYSATUM.)

A Pure Neutral Solution of Peroxide of Iron in the Colloid Form.
The Result of Endosmosis and Diffusion with Distilled Water.

PREPARED SOLELY BY

JOHN WYETH & BRO.,

PHILADELPHIA.

This article possesses great advantages over every other ferruginous preparation heretofore introduced, as it is a solution of Iron in as nearly as possible the form in which it exists in the blood. It is a preparation of invariable strength and purity, obtained by a process of dialysation, the Iron being separated from its combinations by endosmosis, according to the law of diffusion of liquids. It has no styptic taste, does not blacken the teeth, disturb the stomach, or constipate the bowels.

It affords, therefore, the *very best* mode of administering

IRON

in Cases where the use of this remedy is indicated.

Physicians and Apothecaries will appreciate how important is the fact that, as an antidote for Poisoning by Arsenic, Dialysed Iron is quite as efficient as the Hydrated Sesquioxide (hitherto the best remedy known in such cases) and has the great advantage of being always ready for immediate use. It will now doubtless be found in every drug store to supply such an emergency.

Full directions accompany each Bottle.

In addition to the Solution, we prepare a Syrup which is pleasantly flavored, but as the Solution is tasteless, we recommend it in preference; Physicians will find our DIALYSED IRON in all the leading Drug Stores in the United States and Canada.

It is put up in bottles retailing for ONE DOLLAR, containing sufficient for two months treatment. Large size is intended for hospitals and dispensing. Retail at $3.00.

Price Lists, &c., &c., sent on application.

JOHN WYETH & BRO., *Phila.*

Now on hand for the trade by **G. R. FINLAY & CO., E. J. HART & CO.**

Samples to Physicians free on application to

Alex. K. Finlay,
Dispensing Druggist, New Orleans.

COMPRESSED PEPTONIC PILLS.

Each contains 1 grain pure Pepsin, 1 grain pure Pancreatine Lacto-Phosphate of Lime and Lactic Acid, and therefore represents 10 grains each of the ordinary or Lactarated Pepsin and Pancreatine as usually prescribed and dispensed. Physicians have found these Pills to give prompt relief in many forms of Dyspepsia and Indigestion, and of permanent benefit in all cases of enfeebled digestion, produced from want of proper secretion of gastric juice. They will appreciate the great advantage of the mode of preparation of these Pills in the absence of sugar or starch, which is present in all the ordinary Pepsin and Pancreatine Compounds, the increasad benefit to the Dyspeptic being due to a full and effective dose of the Pepsin and Pancreatine in soluble combination, and small bulk free from the really hurtful addition of sugar.

DOSE—One Pill after eating or when suffering from Indigestion, Lump in the Throat or Flatulence. For children reduce the Pill to powder and give one-fourth to one-half.

JOHN WYETH & BRO.
Chemists, Philadelphia.

JOHN WYETH & BRO.,

CHEMISTS.

PHILADELPHIA.

COMPRESSED POWDERS, OR PILLS,

Made by simply compressing a dry powdered drug, without any excipient, moisture or other aid to cohesion. They are found to be porous, to disintegrate and dissolve much more readily than pills made by any other process, and on account of their somewhat flattened shape are more easily swallowed than any other form of pill. The Quinia Bi-Sulphate Compressed will act as promptly as a solution of ordinary Quinine.

COMPRESSED POWDERS, OR PILLS.

Complete lists, with formulæ mailed upon application.

ACID ARSENICI, 1-20 grs.
" SAL., 5 grs.
ACONITLÆ, 1-60 grs.
ALOES and MASTICH, U. S. P.
APERIENT. See list.
BISMUTH SUB. NIT., 5 grs.
CALOMEL, 2 grs.
" and IPECAC, Co.
CATH. Co., U. S. P.
" Imp.
" Veg.
CINCHONA SUL., 2 grs.
CINCHONIDIÆ SUL., 2 grs.
COLOCYNTH. Co. U. S. P.
DIGITALIS Co. See list.
FERRI SUL. EX. Co. See list.
" and QUIN. CIT., 2 grs.
" " and STRYCH., 1-60th.
HOOPERS.
HYDRARG, 3 grains.
IODOFORM and IRON, 1 gr. each,
IPECAC and OPII, 5 grs. pulv. dose.
MORPH. SUL., ⅛ gr.
" " ¼ gr.
NEURALGIC.
OPII, 1 gr.
" and CAMPH. See list.
OPII and PLUMBI ACET. See list.
PHOSPHORUS, 1-60 gr.
" 1-100 gr.
PODOPHYLLIN, ¼ gr.
" ½ gr.
POTASS BI-CARB., 8 grs.
" BROM., 5 grs.
" IODID, 5 grs.
PRANDIO.
QUINIA BI. SUL., 1 gr.
QUIN. BI. SUL., 3 grs.
" " 2 grs.
" " 5 grs.
" and STRYCH.
" SUL., 1 gr.
" " 2 grs.
" " 3 grs.
RHEI, U. S. P.
" Co., U. S. P.
SANTONIN, 1 gr.
" and PODO. See list.
SODA MINT. See list.
" BUCARB., 8 grs.
STRYCHNIÆ, 1-60,
" Co. See list.
SYPHILITIC. See list.
MUR. AMMON., 3 grs.

All of the Compressed Medicines on the above list are now on hand for dispensing by ALEX. K. FINLAY and other apothecaries in New Orleans. They are supplied at wholesale by G. R. FINLAY & Co., E. J. HART & Co., I. L. LYONS, FREDERICKSON & HARTE. Samples furnished free to physicians by mail, on application to

JOHN WYETH & BRO.,
1412 *Walnut Street, Philadelphia.*

BEEF, IRON and WINE.

Extract of Beef, Citrate of Iron and Sherry Wine.

In this preparation are combined the stimulant properties of WINE and the nutriment of BEEF with the tonic powers of IRON, the effect of which on the blood is so justly valued.

The peculiar feature of this combination is that it

COMBINES NUTRIMENT WITH STIMULUS.

In the majority of cases, along with failure of strength, and indeed as one cause of that failure, there is an inability to digest nourishing food. Hence it is very desirable to furnish nourishment in a form acceptable to the stomach, at the same time we excite this organ to do its duty. On the other hand, again, wine stimulus although needed, is ill borne if given by itself, producing headache, excitement and other symptoms which may be avoided by the addition of nutritious substance, such as the ESSENCE OF BEEF.

Prompt results will follow its use in cases of sudden exhaustion, arising either from acute or chronic diseases, and will prove a

VALUABLE RESTORATIVE FOR ALL CONVALESCENTS.

As a Nutritive Tonic it would be indicated in the treatment of impaired nutrition, impoverishment of the blood, and in all of the various forms of general debility. Each tablespoouful contains the Essence of one ounce of Beef, with two grains of Citrate of Iron, dissolved in Sherry Wine. With a view to making the article more palatable, a portion of the beef is in the first place partially roasted, as experience has shown that it is better borne by the stomach, and can be administered for a longer period when this is done.

ADULT DOSE—One tablespoonful between meals, and when suffering from fatigue or exhaustion.

DOSE FOR CHILDREN should be reduced according to the age.

JOHN WYETH & BRO., Chemists.
1412 Walnut Street, Philadelphia.

COD LIVER OIL,

WITH

PHOSPHATE OF LIME.

We earnestly invite the attention of physicians to this article, which will be found to answer a most important purpose as a remedy in the large class of wasting diseases.

One of the principal features in all these affections is the impairment or perversion of nutrition, the too rapid tissue transformation, and the want of certain substances essential to the organism. Especially is this manifest in the typical forms, scrofula in children, pulmonary complaints in adults. In these disorders, Cod Liver Oil acts as a fuel, maintaining animal heat. By adding to it the Phosphate of Lime we supply not only a tonic to the nervous system, but an important ingredient in other tissues of the body. When there is an actual tuberculous deposit, this article promotes its most favorable result, cretification.

Physicians will readily understand that the real reason why very delicate persons can digest our Emulsion of Cod Liver Oil is that the oily particles are without chemical change broken up and incorporated with an agreeable solution, used as a vehicle in the process of manufacture. The molecular condition of the Oil is entirely changed; and it is in consequence more quickly and readily digested when taken.

Each ounce of the mixture contains sixteen grains of the Phosphate of Lime, so that the usual doses of Cod Liver Oil may be given, whatever may be the age of the patient.

Experience has proved that children and adults unable to take Cod Liver Oil as usually administered find no difficulty in taking and retaining this preparation.

Adult dose, a dessert-spoonful, to be increased to a table-spoonful. Children in proportion to age.

The bottle should be well shaken before giving each dose.

MANUFACTURED BY

JOHN WYETH & BROTHER,

1412 Walnut Street, Philadelphia.

University of the City of New York

MEDICAL DEPARTMENT.

410 East Twenty-Sixth Street, Opposite Bellevue Hospital, New York City.

THIRTY-SEVENTH ANNUAL SESSION, 1877-78.

FACULTY OF MEDICINE.

REV. HOWARD CROSBY, D.D., LL. D., Chancellor of the University.

ALFRED C. POST, M.D., LL. D., Professor Emeritus of Clinical Surgery, President of the Faculty.

CHARLES INSLEE PARDEE, M.D., Professor of Diseases of the Ear; Dean of the Faculty.

MARTYN PAYNE, M.D., LL. D., Professor Emeritus of Materia Medica and Therapeutics.

JOHN C. DRAPER, M.D., LL. D., Professor of Chemistry,

ALFRED L. LOOMIS, M.D., Professor of Pathology and Practice of Medicine

WM. DARLING, A.M., M.D., F.R.C.S. Professor of Anatomy.

WM. H. THOMSON, M.D., Professor of Materia Medica and Therapeutics.

J. W. S. ARNOLD, M.D., Professor of Physiology and Histology.

JOHN T. DARBY, M.D., Professor of Surgery.

J. WILLISTON WRIGHT, M.D., Professor of Obstetrics and Diseases of Women and Children.

FANEUIL D. WEISSE, M.D., Professor of Practical and Surgical Anatomy,

R. A. WITTHAUS, JR., M.D., Associate Professor of Chemistry and Physiology..

JOSEPH W. WINTER, M.D., Demonstrator of Anatomy.

POST GRADUATE FACULTY.

D. B. ST. JOHN ROOSA, M.D., Professor of Opthalmology and Otology.

WM. A. HAMMOND, M.D., Professor of Diseases of the Mind and Nervous System.

STEPHEN SMITH, M.D., Professor of Orthopœdic Surgery.

J. W. S. GOULEY, M.D., Professor of Diseases of the Genito-Urinary System.

MONTROSE A. PALEN, M.D., Professor of Gynæcology.

HENRY G. PIFFARD, M.D., Professor of Dermatology.

A. E. MACDONALD, M.D., Professor of Medical Jurisprudence.

JOSEPH W. HOWE, M.D., Clinical Professor of Surgery.

THE COLLEGIATE YEAR is divided into three Sessions:—A Preliminary Session, a Regular Winter Session, and a Spring Session.

THE PRELIMINARY SESSION will commence September 19th, 1877, and will continue until the opening of the Regular Winter Session. It will be conducted on the plan of that Session.

THE REGULAR WINTER SESSION will commence on the Third of October, 1877, and end about the 1st of March, 1878.

The location of the new College edifice being immediately opposite the gate of Bellevue Hospital, and a few steps from the ferry to Charity Hospital, Blackwell's Island, the Students of the University Medical College are enabled to enjoy the advantages afforded by these Hospitals, with the least possible loss of time. The Professors of the practical Chairs are connected with the Hospitals, and the University Students are admitted to *all the Clinics* given therein, *free of charge*.

In addition to the daily Hospital Clinics, there are eight Clinics each week in the College Building. Five Didactic Lectures will be given daily in the College building, and Evening Recitations will be conducted by the Professors of Chemistry, Practice, Anatomy, Materia Medica, etc. Physiology, Surgery and Obstetries, upon the subjects of their Lectures.

THE SPRING SESSION embraces a period of twelve weeks, beginning in the first week of March and ending the last week of May. The daily Clinics, Recitations and Special Practical Courses will be the same as in the Winter Session, and there will be Lectures on Special Subjects by the Members of the Post-Graduate Faculty.

THE DISSECTING ROOM is open throughout the entire Collegiate year; material is abundant, and it is furnished free of charge.

STUDENTS WHO HAVE STUDIED TWO YEARS may be admitted to examination in Chemistry, Anatomy and Physiology, and if successful, will be examined at the expiration of their full course of study, on Practice, Materia Medica and Therapeutics, Surgery and Obstetrics; but those who prefer it may have all their examinations at the close of their full term.

FEES.

For course of Lectures	$140 00
Matriculation	5 00
Demonstrator's fee, including material for dissection	10 00
Graduation Fee	30 00
Post-Graduate Certificate	30 00

For further particulars and circulars, address the Dean,

PROF. CHARLES INSLEE PARDEE, M.D.,
University Medical College, 410 East 26th Street, New York City.

BELLEVUE HOSPITAL MEDICAL COLLEGE,

CITY OF NEW YORK.

SESSIONS OF 1877-1878.

THE COLLEGIATE YEAR in this Institution embraces a preliminary Autumnal Term, the Regular Winter Session, and a Spring Session

THE PRELIMINARY AUTUMNAL TERM for 1877-1878 will open on Wednesday, September 19th, 1877, and continue until the opening of the Regular Session. During this term, instruction, consisting of didactic lectures on special subjects and daily clinical lectures, will be given, as heretofore, by the entire Faculty. Students expecting to attend the Regular Session are strongly recommended to attend the Preliminary Term, but attendance during the latter is not required. *During the Preliminary Term, clinical and didactic lectures will be given in precisely the same number and order as in the Regular Session.*

THE REGULAR SESSION will commence on Wednesday, October 3d, 1877, and end about the 1st of March, 1878.

FACULTY.

ISAAC E. TAYLOR, M. D.,

Emeritus Professor of Obstetrics and Diseases of Women and Children, and President of the Faculty

JAMES R. WOOD, M. D., LL. D.,
Emeritus Prof. of Surgery.

FORDYCE BARKER, M. D.,
Professor of Clinical Midwifery and Diseases of Women.

AUSTIN FLINT, M. D.,
Professor of the Principles and Practice of Medicine and Clinical Medicine.

W. H. VAN BUREN, M. D.,
Professor of Principles and Practice of Surgery, Diseases of Genito-Urinary System, and Clinical Surgery.

LEWIS A. SAYRE, M. D.,
Professor of Orthopedic Surgery and Clinical Surgery.

ALEXANDER B. MOTT, M. D.,
Professor of Clinical and Operative Surgery.

WILLIAM T. LUSK, M. D.,
Professor of Obstetrics and Diseases of Women and Children, and Clinical Midwifery.

EDMUND R. PEASLEE, M. D., LL. D.,
Professor of Gynæcology.

WILLIAM M. POLK, M. D.,
Professor of Materia Medica and Therapeutics, and Clinical Medicine.

AUSTIN FLINT, Jr., M. D.,
Professor of Physiology and Physiological Anatomy, and Secretary of the Faculty.

JOSEPH D. BRYANT, M.D.,
Professor of General, Descriptive, and Surgical Anatomy.

R. OGDEN DOREMUS, M. D., LL. D.,
Professor of Chemistry and Toxicology.

EDWARD G. JANEWAY, M. D.,
Professor of Pathological Anatomy and Histology. Diseases of the Nervous System, and Clinical Medicine

PROFESSORS OF SPECIAL DEPARTMENTS, ETC.

HENRY D. NOYES, M. D.,
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A solution of brain hypophosphates, or cerebrates, in chemically pure glycerine and cerebric acid, containing twenty-nine per cent. of the salts of calcium, magnesium, ammonium, and sodium.

Recommended by Dr. Wiley (Louisville Medical News, June 2d, 1877,) as the most efficient remedy known in tubercular phthisis, impotency, decay of the brain faculties, and general vital deteriation.

Sold by RICHARDSON & CO., Wholesale Druggists, 704 N. Main Street, St. Louis, Mo., and A. C. DUNG, 61 Bowery, N. Y.

AMERICAN FLOATING SANITARIUM,

Leaves New York Dec. 1, 1877, visits all points of interest on the route to and from Rio Janeiro. Returns to New York, May 1, 1878 Special arrangements for invalids. **TERMS MODERATE.** Send for prospectus, containing particulars and endorsements by the medical profession.

REV. ALVAT WISVALL, or
FERD. C. VALENTINE, M.D.,
152 W. 15th St., New York.

A NEW FORM OF NON-HUMANIZED VACCINE VIRUS.

Patent Solid Lymph Cones.

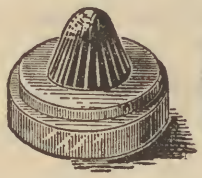

Fig. 2.

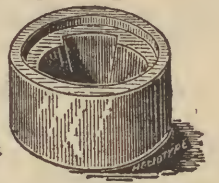

Fig. 1.

We wish to call the attention of the profession to this new form of animal virus. Having been among the earliest purveyors in this country, we have during the last six years conducted a continued series of experiments, hoping to be able to furnish physicians with an article more convenient, economical and durable than quill slips, ivory points, or crusts. Now after a long trial of solid lymph in our own practice and that of friends in the profession, we have been induced to offer it to physicians as the ultimatum of durability, economy, convenience and reliability. Each cone can be made to vaccinate one hundred or more persons, will remain ert three months or more, and will bear the temperature of all climates. We are satisfied that physicians once using it will use no other form of vaccine virus.

We have constructed an air-tight receptacle for storing and transporting this cone, which is to be used in the following manner: File off a portion of the cone into the cup-shaped depression [shown in Fig. 1,] which previously partly fill with water. This powder in solution is equal in power to fluid lymph. Into this, uncharged ivory points are to be dipped, and when dried are ready for use.

We also make a specialty of furnishing reliable, heavily charged ivory points.

TERMS.

One Solid Lymph Cone and Vaccinating Outfit, consisting of Ten Uncharged Ivory Points, File and Receptacle	$3 00
Ten Heavily Cherged Ivory Points	1 00
Single Points	20

All virus warranted. Remit by P. O. Money Order, Registered Letter or Draft. Send for Circular. Address.

NEW ENGLAND VACCINE CO.,
Chelsea, Mass.

K. & M.

EXTRACT OF MALT WITH COD LIVER OIL

ORIGINATED BY KEASBEY & MATTISON.

The Most Nutritive Emulsion ever Made.

Our improved Extract of Malt, with 50 per cent. of our fine Norwegian Oil, is preeminently the emulsion of Cod Liver Oil, since it has double the nutritive effect of any other emulsion of oil. It not only contains the largest amount of nutritive food in the smallest bulk of liquid, but by the action of the Diastase contained in the malt, it is capable of transforming many times its bulk of amylaceous or graminaceous food into saccharine, thus rendering it easily digestible even by the most delicate stomach of the invalid. The disagreeable eructations from the stomach, which is one of the greatest objections to the use of all preparations of Cod Liver Oil, is completely obviated in this preparation. We would direct the attention of physicians to the special fact that it unites perfectly with water in any proportion, and that the oil does not again separate, thus showing how perfectly the oil is emulsified.

Dose—A Dessert to Tablespoonful immediately after Meals.

K. & M.

Improved Extract of Malt with Pepsin

This is our improved Extract of Malt, with the addition of five grains of our Saccharated Pepsin to the tablespoonful. For dyspeptic disorders it is found of great value since it digests both albumenoid and amylaceous mattor, thus furnishing a preparation that is needed in the majority of cases of dyspepsia and other derangements of the stomach dependent upon the non-assimilation of the food.

Dose—A Dessert to Tablespoonful immediately after Meals.

K. & M.

Beef, Iron, and Wine, with Extract of Malt

ORIGINATED BY KEASBEY & MATTISON.

A Nourishing Diet for Invalids and Convalescents.

As a simple rostorative food, where a tonic effect is desired, there is perhaps nothing in the whole line of tonic dietetics of so much real value as this preparation. It furnishes the diseased stomach with the power of assimilating amylaceous diet, and supplies readily assimilable food at the same time, in the articles of Malt Extract. The iron salt supplies the red corpuscles that are deficient in the blood, while to the nutrient effect of beef is added the stimulant effect of a fine sherry wine. Each tablespoonful represents two grains of the soluble citrate of iron, and one ounce of finely chopped raw lean beef, with equal quantities of our Improved Extract of Malt and sherry wine.

MESSRS. KEASBEY & MATTISON: CLOVERDALE, CAL., July 24, 1877.

Gentlemen,— . . . For counteracting the effect of tuberculous and other wasting diseases your (K & M.) Cod Liver Oil emulsion with Malt Extract used in conjunction with your Beef, Wine and Iron, with Extract of Malt, is certainly superior to anything else in that line that has ever been put before us. We have tried quite all the prominent emulsions made in the United States, and some from Europe. The proper mode of using them is to take just after meals, three times a day, a tablespoonful of the emulsion and immediately follow it with the same amount of Beef, Wine, and Iron, and Malt Extract.

Respectfully yours, QUINTUS C. SMITH, M. D.

Equal parts of Extract Malt and Cod Liver Oil when mixed forms an emulsion in which the taste of the latter is perfectly disguised, and is at the same time the most nutritious combination known; as such, it is of great value in anæmia, general debility and all kindred disorders. It is of great importance that a good article of Malt Extract should be used. That of Keasbey & Mattison is the most reliable, far superior to either Loeflund's or Trommer's L. WASHINGTON, M. D., in "N. Y. Medical Journal."

MESSRS. KEASBEY & MATTISON: LOUISVILLE, August 13 1875.

Gentlemen—It gives me pleasure to certify to the usefulness of the K. & M. Infants' Food. I have had excellent results in two cases of "bottle-fed babies." They suffered continually with colic, and were alternately effected with diarrhœa and constipation. Change in food and the usual remedies failed. The use of the K. & M. Food has a marked influence upon them. They are no longer colicky, their bowels are natural in function, and they have rapidly gained flesh. Respectfully, Prof. W. H BOLLING, M. D.

MESSRS. KEASBEY & MATTISON: LOUISVILLE, August 21, 1877.

Gentlemen,—I have great pleasure in saying that I have used a great many of your preparations and have always found them exactly as represented. The Extract of Malt of your make is indeed excellent, and I have used it with great success both in private and hospital practice. That form containing Cod Liver Oil with Tincture Chloride Iron you kindly prepared at my suggestion, I could not speak too highly of in the treatment of Phthisis Pulmonalis and other pulmonary troubles. It is worth its weight in gold. The matron of the Kentucky Infirmary for Women and Children, by my direction, has given the "K & M., Infants' Food" prepared by you a most thorough test, and speaks of it in the very highest terms. Truly yours, GEO. W. GRIFFITH,

Visiting Physician Dept. Diseases Peculiar to Women and Children, Ky. Infirmary, etc., etc.

Always SPECIFY "K. & M." IN ORDERING or PRESCRIBING.

Virginia Medical Monthly

PUBLISHED IN RICHMOND, VA.

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Member Va. State Board of Health, Rec'd'g Sec'ry and Treasurer Med. Society of Va.; formerly Lecturer on Anatomy, and Mat. Med, Med. College of Va., etc.

The *Monthly* has all departments of medical journals. It is independent of every institution or corporation. Its contributors are among the leaders of medical opinion in America. Its articles are practical. Its translations from leading journals of Europe, etc., note advances made in foreign countries. It is establishing correspondents and clinical reporters in the prominent medical centres. The following are only a few of the complimentary

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In every respect worthy of support.—*Richmond & Louisville Med. Jo ≈ r.*

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Evinces an industry and taste on the part of the editor which commends it most favorably to the profession everywhere.—*Amer. Prac.*

Highly creditable to its editor and proprietor.—*Atlanta Med. & Surg. Jour.*

Ranks among its contributors some very able men.—*Charleston Med. Jour. & Rev.*

In proof of the general acceptability of the journal at home, it may be stated that the *Transactions of the Medical Society of Virginia* of 1874 and 1875; the *Proceedings of the Association of Medical Officers of the Confederate States Army and Navy*, 1875; and the *Proceedings of the Eastern [North Carolina] Medical Association*, December, 1875, have all been published by official vote (without solicitation on the part of the editor), in connection with the *Monthly.*

The *Monthly* has no club rates; but to any one who sends us before April, 1877, four *new* subscribers, with $12 in Postoffice money order or registered letter, we will furnish the journal free for one year. The *Monthly* makes quite regular reports of the Proceedings of the Mobile Medical Society; the Nashville Medical Society; the Richmond Academy of Medicine, etc.

In subscribing, always state with which number to begin. It is useless waste of stamps or postal cards to send to us for specimen copies unless each order is accompanied by 30 cents.

Address, LANDON B. EDWARDS, M.D.,
RICHMOND, VIRGINIA.

Original Contributions are solicited from every quarter; but they must be in hand by the 1st of the month preceding the issue in which they are expected to appear.

FREDERICKSON & HARTE,

CHEMISTS AND DRUGGISTS.

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NEW ORLEANS.

Have always on hand a full assortment of

Pure and Fresh Medicines, Chemicals,

SURGICAL INSTRUMENTS, Etc.,

Which are selected with great care for our extensive Retail and Prescription Business, as we purchase our goods especially for our own use. We can offer a full guarantee to Physicians who reside in the country, and who will entrust us with the filling of their orders, that they will be executed to their full satisfaction—in regard to quality and charges. Having made arrangements with the leading Chemical Laboratories and Manufacturing Houses of England, France and Germany, we are constantly supplied with

Pure Chemicals, Fresh Medicinal Extracts,

And other preparations in our line, rarely to be found here, in a condition suitable for dispensing purposes.

Having been appointed SOLE AGENTS FOR GEO. TIEMANN & CO., we have always in stock a varied assortment of

SURGICAL INSTRUMENTS,

and also,

ELASTIC SILK STOCKINGS,
KNEE CAPS,
ABDOMINAL SUPPORTERS, Etc., Etc., Etc.

Among our specialties we would call the attention of physicians to our preparation of

COD-LIVER OIL and SOLUBLE PHOSPHATE OF LIME,

a most perfect emulsion and superior in every respect to all similar compounds. We have also on hand the pure NORWEGIAN COD-LIVER OIL, of our own importation.

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139 *Canal Street (Touro Buildings,) New Orleans.*

University of Louisville Medical Department.

FORTY-FIRST ANNUAL SESSION,

Preliminary Course (free to all students) begins Sept. 3, and ends with the beginning of the regular course, Oct. 1. End of the regular course March 1.

FACULTY.—J. M. Bodine, M.D.; L. P. Yandall, Jr., M.D.; E. R. Palmer, M.D.; T. S. Bell, M.D.; John E. Crowe, M.D.; J. W. Holland, M.D.; D. W. Yandell, M.D.; R. O. Cowling, M.D.; W. O. Roberts, M.D.

FEES.—Professors' tickets, in full, $50; Matriculation fee, $5; Demonstrator's ticket, $10; Graduation, $30; Hospital ticket, (required by the city), $5.

For circulars, address J. W. HOLLAND, M.D., Secretary, or J. M. BODINE, M.D., Dean.

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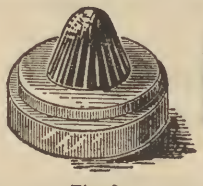

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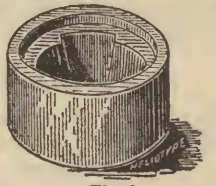

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Ten Heavily Cherged Ivory Points	1 00
Single Points	20

All virus warranted. Remit by P. O. Money Order, Registered Letter or Draft. Send for Circular. Address.

NEW ENGLAND VACCINE CO.,
Chelsea, Mass.

JOHN WYETH & BRO.,

CHEMISTS.

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COMPRESSED POWDERS, OR PILLS,

Made by simply compressing a dry powdered drug, without any excipient, moisture or other aid to cohesion. They are found to be porous, to disintegrate and dissolve much more readily than pills made by any other process, and on account of their somewhat flattened shape are more easily swallowed than any ohter form of pill. The Quinia Bi-Sulphate Compressed will act as promptly as a solution of ordinary Quinine.

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Complete lists, with formulæ mailed upon application.

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OPII, 1 gr.
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PRANDIO.
QUINIA BI. SUL., 1 gr.
QUIN. BI. SUL., 3 grs.
" " 2 grs.
" " 5 grs.
" and STRYCH.
" SUL., 1 gr.
" " 2 grs.
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" Co., U. S. P.
SANTONIN, 1 gr.
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SODA MINT. See list.
" BUCARB., 8 grs.
STRYCHNIÆ, 1-60,
" Co. See list.
SYPHILITIC. See list.
MUR. AMMON., 3 grs.

All of the Compressed Medicines on the above list are now on hand for dispensing by ALEX. K. FINLAY and other apothecaries in New Orleans. They are supplied at wholesale by G. R. FINLAY & Co., E. J. HART & Co., I. L. LYONS, FREDERICKSON & HARTE. Samples furnished free to physicians by mail, on application to

JOHN WYETH & BRO.,
1412 *Walnut Street, Philadelphia.*

BEEF, IRON and WINE.

Extract of Beef, Citrate of Iron and Sherry Wine.

In this preparation are combined the stimulant properties of WINE and the nutriment of BEEF with the tonic powers of IRON, the effect of which on the blood is so justly valued.

The peculiar feature of this combination is that it

COMBINES NUTRIMENT WITH STIMULUS.

In the majority of cases, along with failure of strength, and indeed as one cause of that failure, there is an inability to digest nourishing food. Hence it is very desirable to furnish nourishment in a form acceptable to the stomach, at the same time we excite this organ to do its duty. On the other hand, again, wine stimulus although needed, is ill borne if given by itself, producing headache, excitement and other symptoms which may be avoided by the addition of nutritious substance, such as the ESSENCE OF BEEF.

Prompt results will follow its use in cases of sudden exhaustion, arising either from acute or chronic diseases, and will prove a

VALUABLE RESTORATIVE FOR ALL CONVALESCENTS.

As a Nutritive Tonic it would be indicated in the treatment of impaired nutrition, impoverishment of the blood, and in all of the various forms of general debility. Each tablespoonful contains the Essence of one ounce of Beef, with two grains of Citrate of Iron, dissolved in Sherry Wine. With a view to making the article more palatable, a portion of the beef is in the first place partially roasted, as experience has shown that it is better borne by the stomach, and can be administered for a longer period when this is done.

ADULT DOSE—One tablespoonful between meals, and when suffering from fatigue or exhaustion.

DOSE FOR CHILDREN should be reduced according to the age.

JOHN WYETH & BRO., Chemists.
1412 Walnut Street, Philadelphia.

COD LIVER OIL,

WITH

PHOSPHATE OF LIME.

We earnestly invite the attention of physicians to this article, which will be found to answer a most important purpose as a remedy in the large class of wasting diseases.

One of the principal features in all these affections is the impairment or perversion of nutrition, the too rapid tissue transformation, and the want of certain substances essential to the organism. Especially is this manifest in the typical forms, scrofula in children, pulmonary complaints in adults. In these disorders, Cod Liver Oil acts as a fuel, maintaining animal heat. By adding to it the Phosphate of Lime we supply not only a tonic to the nervous system, but an important ingredient in other tissues of the body. When there is an actual tuberculous deposit, this article promotes its most favorable result, cretification.

Physicians will readily understand that the real reason why very delicate persons can digest our Emulsion of Cod Liver Oil is that the oily particles are without chemical change broken up and incorporated with an agreeable solution, used as a vehicle in the process of manufacture. The molecular condition of the Oil is entirely changed; and it is in consequence more quickly and readily digested when taken.

Each ounce of the mixture contains sixteen grains of the Phosphate of Lime, so that the usual doses of Cod Liver Oil may be given, whatever may be the age of the patient.

Experience has proved that children and adults unable to take Cod Liver Oil as usually administered find no difficulty in taking and retaining this preparation.

Adult dose, a dessert-spoonful, to be increased to a table-spoonful. Children in proportion to age.

The bottle should be well shaken before giving each dose.

MANUFACTURED BY

JOHN WYETH & BROTHER,

1412 Walnut Street, Philadelphia.

THE IMPROVED TROMMER'S

EXTRACT OF MALT

The rapidly increasing demand for our Improved Extract of Malt, during the four years that it has been manufactured and offered to the medical profession in America, justifies the belief that in its production here we are meeting a generally felt want.

Long experience in manufacturing Malt Extract has enabled us to completely overcome the many difficulties attending its manufacture in large quantity; and we positively assure the profession that our Extract of Malt is not only perfectly pure and reliable, but that it will keep for years, in any climate, without fermenting or molding, and that its flavor actually improves by age. Our Extract is guaranteed to equal, in every respect, the best German make, while, by avoiding the expense of importation, it is afforded at less than half the price of the foreign article.

The Malt from which it is made, is obtained by carefully melting the very best quality of selected Toronto Canada Barley. The Extract is prepared by an *improved process*, which prevents injury to its properties or flavor by excess of heat. IT REPRESENTS THE SOLUBLE CONSTITUENTS OF MALT AND HOPS, viz: Malt, sugar, dextrine, diastase, resin and bitter of hops, phosphates of lime and magnesia, and alkaline salts.

Attention is invited to the following analysis of this Extract, as given by S. H. Douglas, Professor of Chemistry, University of Michigan, Ann Arbor.

TROMMER EXTRACT OF MALT CO.:—I enclose herewith my analysis of your Extract of Malt:

Malt Sugar 46.1; Dextrine, Hop-bitter, Extractive Matter, 23.6; Albuminous Matter [Diastase,] 2.469; Ash—Phosphates, 1.712. Alkalies .377; Water, 25.7. Total, 99.958.

In comparing the above analysis with that of the Extract of Malt of the German Pharmacopœa, as given by Hager, that has been so generally received by the profession, I find it to substantially agree with that article.

Yours truly,
SILAS H. DOUGLAS,
Prof. of Analytical and Applied Chemistry.

This invaluable preparation is highly recommended by the medical profession, as a most effective therapeutic agent, for the restoration of delicate and exhausted constitutions. It is very nutritious, being rich in both muscle and fat producing materials.

The very large proportion of *Diastase* renders it most effective in those forms of disease originating in *imperfect digestion of the starchy elements* of food.

A single dose of the Improved Trommer's Extract of Malt, contains a larger quantity of the active properties of Malt, than a pint of the best ale or porter; and not having undergone fermentation, is absolutely free from alcohol and carbonic acid.

The dose for adults is from a dessert to a tablespoonful three times daily. It is best taken after meals, pure, or mixed with a glass of milk, or in water, wine, or any kind of spirituous liquor. Each bottle contains ONE and ONE-HALF POUNDS of the Extract.

Our preparations of Malt are for sale by druggists generally throughout the United States and Canadas, at the following prices:

EXTRACT OF MALT,	*with Hops, plain,*	- - - - - -			$1 00
" " "	"	*Pyrophosphate of Iron, Ferrated,*	- - -		1 00
" " "	"	*Cod Liver Oil,*	- - - - -		1 00
" " "	"	*Cod Liver Oil and Iodide of Iron,*	- - -		1 00
" " "	"	*Cod Liver Oil and Phosphorus,*	- - -		1 00
" " "	"	*Hypophosphites,*	- - - - - -		1 50
" " "	"	*Iodides,*	- - - - - -		1 50
" " "	"	*Alteratives,*	- - - - - -		1 50
" " "	"	*Citrate of Iron and Quinia,*	- - -		1 50
" " "	"	*Pepsin,*	- - - - - - -		1 50

MANUFACTURED BY

TROMMER EXTRACT OF MALT COMPANY, – Fremont, Ohio.

SULPHATE OF CINCHONIDIA.

The present high price of SULPHATE OF QUINIA, which seems likely to continue for two or three months to come, will cause more attention to be paid to the other alkaloids of the Cinchonas—particularly in view of their great comparative cheapness.

We learn from reliable sources that in the year 1866, the Madras Government appointed a Medical Commission to test the respective efficacy in the treatment of fever, of Quinia, Quinidia, Cinchonia and Cinchonidia. From the report, it appears that the number of cases of paroxysmal malarious fevers treated was 2472—namely, 836 with Quinia, 664 with Quinidia, 569 with Cinchonia and 403 with Cinchonidia. Of these 2472 cases, 2445 were cured and 27 failed. The difference in remedial value of the four alkaloids may be thus stated—

QUINIDIA---Ratio of cure per 1000 cases,				994
QUINIA	"	"	"	993
CINCHONIDIA	"	"	"	990
CINCHONIA	"	"	"	977

to which we can add that the article has been tried in this country by upwards of **eighteen thousand physicians**, and that the testimonies we have been daily receiving during the last two years, agree with **remarkable unanimity** in placing this remedy side by side in efficacy with Sulphate of Quinia.

It may be expected that the increasing demand for it will, in the course of time, cause it to approximate more closely in price to Sulphate of Quinia.

The few who might possibly hesitate to use the comparatively new salt of Sulphate of Cinchonidia, have still Sulphate of Quinidia to fall back upon.

POWERS & WEIGHTMAN.

PHILADELPHIA, March, 1877.

TO PHYSICIANS.

THE scarcity and high prices of Cinchona barks and Sulphate of Quinia, and the prospect of only a slight reduction in these prices, makes the present a favorable opportunity of calling the attention of the profession to the *combination of all the bark alkaloids.*

Much attention has been given to this subject in Europe and India.

The growing appreciation by the medical profession of the United States of

CINCHO-QUININE

is due to the fact that it retains the important alkaloids IN COMBINATION, — a combination which in practice is *preferable to perfect isolation or separation* of these alkaloids.

In addition to its superior efficacy as a tonic and anti-periodic, it has the following advantages, which greatly increase its value to physicians : —

1st, *It exerts the full therapeutic influence of* Sulphate of Quinine, *in the same doses*, without oppressing the stomach, creating nausea, or producing cerebral distress, as the Sulphate of Quinine frequently does; and it produces much less constitutional disturbance.

2d, It has the great advantage of being *nearly tasteless.* The bitter is very slight, and not unpleasant to the most sensitive, delicate woman or child.

3d, It is *less costly :* the price will fluctuate with the rise and fall of barks, but will always be much less than the Sulphate of Quinine.

4th, It meets indications not met by that Salt.

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"I have tested CINCHO-QUININE, and have found it to contain *quinine, quinidine, cinchonine, cinchonidine.* F. A. GENTH,
Professor of Chemistry and Mineralogy."

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"I hereby certify that I have made a chemical examination of the contents of a bottle of CINCHO-QUININE and by direction I made a qualitative examination for *quinine, quinidine,* and *cinchonine,* and hereby certify that I found these alkaloids in CINCHO-QUININE.
C. GILBERT WHEELER,
Professor of Chemistry."

"I have made a careful analysis of the contents of a bottle of your CINCHO-QUININE, and find it to contain *quinine, quinidine, cinchonine,* and *cinchonidine.*
S. P. SHARPLES, *State Assayer of Mass.*"

TESTIMONIALS.

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"I have used CINCHO-QUININE, and can say without any hesitation it has proved superior to the sulphate of quinine. J. G. JOHNSON, M.D."

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"I use the CINCHO-QUININE altogether among children, preferring it to the sulphate.
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"I have used CINCHO-QUININE, obtaining better results than from the sulphate in those cases in which quinine is indicated.
DR. I. C. BARLOTT."

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"I am well pleased with the CINCHO-QUININE, and think it is a better preparation than the sulphate. W. H. HALBERT."

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"I believe that the *combination* of the several cinchona alkaloids is more generally useful in practice than the sulphate of quinine uncombined.
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Member Va. State Board of Health, and Sec'y and Treas. Medical Society of Va."

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"I have used several ounces of the CINCHO-QUININE, and have not found it to fail in a single instance. I have used no sulphate of quinine in my practice since I commenced the use of the CINCHO-QUININE, as I prefer it. F. C. BATEMAN, M.D."

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In comparing the above analysis with that of the Extract of Malt of the German Pharmacopœa, as given by Hager, that has been so generally received by the profession, I find it to substantially agree with that article,

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In a practice of twenty years, eight of which were in connection with a drug store, I have used Quinine in such cases as are generally recommended by the Profession. In the last four or five years I have used *very* frequently your CINCHO-QUININE in place of Quinine, and have *never* been disappointed in my expectations.

JNO. Y. SHINDEL, M.D.

Gents: It may be of some satisfaction to you to know that I have used the alkaloid for two years, or nearly, in my practice, and I have found it reliable, and *all* I think that you claim for it. For children and those of irritable stomachs, as well as those too easily *quininized* by the Sulphate, the Cincho acts like a charm, and we can hardly see how we did without it so long. I hope the supply will continue.

Yours, with due regard,
J. R. TAYLOR, M.D., Kosse, Texas.

I have used your CINCHO-QUININE exclusively for four years in this malarial region.

It is as active an anti-periodic as the Sulphate, and more agreeable to administer. It gives great satisfaction.

D. H. CHASE, M.D., Louisville, Ky.

I have used the CINCHO-QUININE ever since its introduction, and am so well satisfied with its results that I use it in all cases in which I formerly used the Sulphate; and in intermittents it can be given during the paroxysm of fever with perfect safety, and thus lose no time.

W. E. SCHENCK, M.D., Pekin, Ill.

I am using CINCHO-QUININE, and find it to act as reliably and efficiently as the Sulphate.

In the case of children, I employ it almost exclusively, and deem its action upon them more beneficial than that of the time-honored Sulphate.

W. C. SCHULTZE, M.D.,
Marengo, Iowa.

CINCHO-QUININE in my practice has given the best of results, being in my estimation far superior to Sulphate of Quinine, and has many advantages over the Sulphate. G. INGALLS, M.D.,
Northampton, Mass.

Your CINCHO-QUININE I have used with marked success. I prefer it in every way to the Sulphate.

D. MACKAY, M.D., Dallas, Texas.

We will send a sample package for *trial*, containing fifty grains of CINCHO-QUININE, on receipt of twenty-five cents, or one ounce upon the receipt of one dollar and sixty cents, post paid. Special prices given for orders amounting to one hundred ounces and upwards.

WE MANUFACTURE CHEMICALLY PURE SALTS OF

Arsenic, Ammonium, Antimony, Barium, Bromine, Bismuth, Cerium, Calcium, Copper, Gold, Iodine, Iron, Lead, Manganese, Mercury, Nickel, Phosphorus, Potassium, Silver, Sodium, Tin, Zinc, etc.

☞ *Price List and Descriptive Catalogue furnished upon application.*

BILLINGS, CLAPP & CO., Manufacturing Chemists,

(SUCCESSORS TO JAS. R. NICHOLS & CO.)

BOSTON, MASS.

TO THE MEDICAL PROFESSION.

A NEW AND IMPORTANT REMEDY.

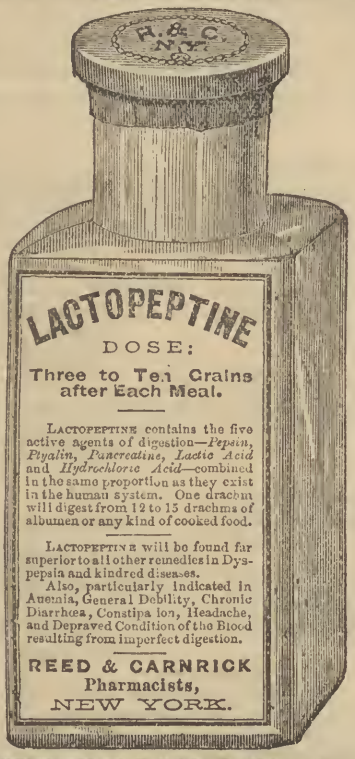
LACTOPEPTINE.

LACTOPEPTINE contains all the agents of digestion that act upon food, from mastication to its conversion into chyle, and is therefore the most important remedy for Dyspepsia that has ever been produced.

The digestive power of LACTOPEPTINE is seven times greater than any preparation of Pepsin in the market, as it has the important advantage of dissolving all aliment used by mankind, while Pepsin acts only upon plastic food.

This preparation has now been in the hands of the Medical Profession for two years, during which time its therapeutic value has been most thoroughly established in cases of Dyspepsia, Intestinal diseases of Children, Chronic Diarrhœa, Constipation, Vomiting in Pregnancy or Dyspepsia, Headache, and all diseases arising from Imperfect nutrition.

One of the most important applications of LACTOPEPTINE *is in those cases where the digestive organs are unable, from debility, to properly prepare for assimilation the remedies indicated. In such cases combine it with the remedy indicated.*

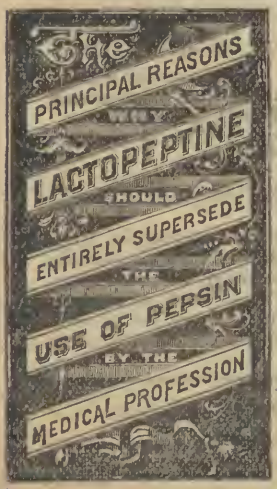


LACTOPEPTINE, *as well as all other preparations of our manufacture, is prepared strictly for the use of the Medical Profession, and is kept invariably in their hands.*

FORMULA OF LACTOPEPTINE.

Sugar of Milk,	20 *Ounces.*	*Veg. Ptyalin or Diastase,*	1 *Drachm.*
Pepsin,	4 "	*Lactic Acid,*	2½ *fl. Drachms.*
Pancreatine,	3 "	*Hydrochloric Acid,*	2½ *fl.* "

Powder and Mix.



1st.—It will digest from three to four times more *coagulated albumen* than any preparation of Pepsin in the market.

2d.—It will emulsionize and prepare for assimilation the oily and fatty portions of food, Pepsin having no action upon this important alimentary article.

3d.—It will change the *starchy* portions of vegetable food into the assimilable form of Glucose.

4th.—It contains the natural acids secreted by the stomach (*Lactic and Hydrochloric*), without which Pepsin and Pancreatine will not change the character of coagulated albumen.

5th.—Experiments will readily show that the digestive power of the ingredients of Lactopeptine, when two or more are combined, is much greater than when separated. Thus, 4 grs. of Pepsin and 4 grs. of Pancreatine mixed, will dissolve one-third more albumen than the combined digestive power of each agent separately in same length of time.

6th.—IT IS MUCH LESS EXPENSIVE TO PRESCRIBE. It dissolves nearly four times as much coagulated albumen as Pepsin, besides digesting all other food taken by the human stomach. *An ounce of Lactopeptine is, therefore fully equal in digestive power to seven ounces of Pepsin, yet it is furnished at about the same price.*

All the statements made in this Circular are the result of repeated and careful experiments.

The palatability and digestive power of LACTOPEPTINE has been more than doubled during the past two months, by producing several of its component parts free from all extraneous matter, and we now believe it is not susceptible of any further improvement.

Physicians who have not given LACTOPEPTINE a trial in their practice, are respectfully requested to read the following opinions of some of our leading Practitioners as to its merits as an important remedial agent.

IN ADDITION TO THE FOLLOWING RECOMMENDATIONS, WE HAVE RECEIVED OVER SEVEN HUNDRED COMMENDATORY LETTERS FROM PHYSICIANS, A LARGE NUMBER OF WHICH ENUMERATE CASES WHERE PEPSIN ALONE HAD FAILED TO BENEFIT, BUT FINALLY HAD BEEN TREATED SUCCESSFULLY WITH LACTOPEPTINE.

——oo——

The undersigned, having tested REED & CARNRICK'S preparation of Pepsin, Pancreatine, Diastase, Lactic Acid and Hydrochloric Acid, made according to published formulæ, and called *Lactopeptine*, find that in those diseases of the stomach where the above remedies are indicated, it has proven itself a desirable, useful and well adapted addition to the usual pharmaceutical preparations, and therefore recommend it to the profession.

NEW YORK, *April 6th*, 1875.

J. R. LEAMING, M. D.,
Attending Physician at St. Luke's Hospital.

ALFRED L. LOOMIS, M. D.,
Professor of Pathology and Practice of Medicine, University of the City of New York.

JOSEPH KAMMERER, M. D.,
Clinical Professor of Diseases of Women and Children, University of the City of New York.

LEWIS A. SAYRE, M. D.,
Professor of Orthopœdec Surgery and Clinical Surgery, Belevue Hospital Medical College.

EDWARD G. JANEWAY, M. D.
Professor Pathological and Practical Anatomy, and Lecturer on Materia Medica and Therapeutics and Clinical Medicine.

SAMUEL R. PERCY, M. D.,
Professor Materia Medica, New York Medical College.

J. H. TYNDALL, M D.,
Physician at St. Francis' Hospital.

OSEPH E. WINTERS, M. D.,
House Physician Belevue Hospital

GEO. F. BATES, M. D.,
House Surgeon Belevue Hospital.

——oo——

INEBRIATE ASYLUM, NEW YORK, March 25th, 1875.

I have carefully watched the effects of *LACTOPEPTINE*, as exhibited in this institution, for about six months, especially in the treatment of Gastritis, and it gives me pleasure to be able to say that I have found the best results from it, supplying as it does an abnormal void of nature in the secretions of the stomach. N. KEELER MORTON., M. D.

——oo——

BRANDON, VT., March 31st, 1875.

I desire to say that I have used *LACTOPEPTINE* for a year, not only on my friends, but also in my own case, and have found it one of the most valuable aids to digestion that I have ever used.

A. T. WOODWARD, M. D.,
Late Professor of Obstetrics and Diseases of Women and Children Vermont Med. College.

——oo——

EXTRACT FROM A REPORT UPON THE USES OF LACTOPEPTINE, BY J. KING MERRITT, M. D., FLUSHING, L. I.

About six months since I saw a notice of *LACTOPEPTINE* and its analysis in a Medical Journal, and having long ago recognized the inability of Pepsin to reach those cases in which the several processes of digestion are all more or less involved, I immediately commenced the use of *LACETOPEPTINE* in my own case. This was, in brief, an inherited, fostered, persistent condition of General Dyspepsia, which I had treated for several years with Pepsin, finding in its use good service, although the general results were discouraging.

A large proportion of diseases are the result of imperfect digestion.

In all cases when the stomach is unable to digest and appropriate the remedies indicated, they should be combined with Lactopeptine.

The effect of *LACTOPEPTINE* on my powers of digestion has far surpassed my expectations, and its remedial qualities in numerous cases, more or less complicated, have been all that I could desire. In these cases *LACTOPEPTINE* was associated with other remedies indicated, for the purpose of facilitating their assimilation, which is so often nullified by a disordered and debilitated condition of the digestive organs.*

I will now give, in brief, an epitome of a case recovering under the use of *LACTOPEPTINE*. She was a married lady, who five years ago became afflicted with diarrhœa, which had baffled every mode of intelligent treatment. She had an intestinal flux, body much emaciated, and her entire health was greatly impaired. I treated her with *LACTOPEPTINE*, in conjunction with other remedies, many of which had been formerly used without avail. She is now rapidly recovering.

I shall only add that the more my experience, in its varied applicability, extends, the more its beneficial effects appear.

——oo——

NEWTON, IOWA, May 10th, 1875.

I have been using *LACTOPEPTINE* for several months, and after a careful trial in stomach and bowel troubles, find that it has no equal. In all cases of indigestion and lack of assimilation, it is a most splendid remedy. H. E. HUNTER, M. D.

——oo——

WEST NEWFIELD, ME., June 14th, 1875.

LACTOPEPTINE seems to be all that it is recommended to be. It excels all remedies that I have tried in aiding a debilitated stomach to perform its functions.

STEPHEN ADAMS, M. D.

——oo——

WOLCOTT, WAYNE CO., N. Y., June 29th, 1875.

From the experience I have had with *LACTOPEPTINE*, I am of the opinion that you have produced a remedy which is capable of fulfilling an important indication in a greater variety of diseases than any medicine I have met with in a practice of over 45 years. JAMES M. WILSON, M. D.

——oo——

BROWNVILLE, N. Y., August 3d, 1875.

Some time since I received a small package of *LACTOPEPTINE*, which I have used in a case of long standing Dyspepsia. The subject is a man 40 years of age; has had this ailment over 10 years. I never had so bad a case before, and I have been practicing medicine 21 years. Your *LACTOPEPTINE* seems just the remedy he needs. He is improving finely, and can now eat nearly any kind of food without distress. I have several cases I shall take hold of as soon as I can obtain the medicine.

W. W. GOODWIN, M. D.

——oo——

EDDYVILLE, WAPELLO CO., IOWA, May 5th, 1875.

I have used the *LACTOPEPTINE* in my practice for the last eighteen months, and find it to be one of our great remedies in all diseases of the stomach and bowels. I was called last fall to see a child three years old, that was almost in the last struggles of death with Cholera Infantum. I ordered it teaspoonful doses of Syrup of Lactopeptine, and in a few days the child was well. I could not practice without it.

F. C. CORNELL, M. D.

——oo——

CORTLAND, DE KALB CO., ILL., August 12th, 1875.

I received recently a small package of *LACTOPEPTINE* with the request that I should try it in a severe case of Dyspepsia. I selected a case of a lady who has been a sufferer over 30 years. She reported relief after the first dose, and now, after using the balance of the package in doses of three grains, three times daily, says she has received more benefit from it than from any other remedy she had ever tried.

G. W. LEWIS, M. D.

* We desire particularly to call the attention of the Profession to the great value of LACTOPEPTINE when used in conjunction with other remedies, especially in those cases in which the digestive organs are unable, from debility, to properly prepare for assimilation the remedies indicated.

One drachm of Lactopeptine will digest ten ounces of Coagulated Albumen, while the same quantity of any standard preparation of Pepsin in the market will dissolve but three ounces.

One drachm of Lactopeptine dissolved in four fluid drachms of water will emulsionize sixteen ounces of Cod Liver Oil.

CHILLICOTHE, MO., September 4th, 1874.

I have used *LACTOPEPTINE* this summer with good effect in all cases of weak and imperfect digestion, especially in children during the period of dentition, cholera infantum, &c. I regard it, decidedly, as being the best combination containing Pepsin that I have ever used. J. A. MUNK, M. D.

——oo——

FORT DODGE, IOWA, November 15th, 1874.

I have fairly tried, during the past summer and fall, your *LACTOPEPTINE*, and consider it a most useful addition to the list of practical remedies. I have found it especially valuable in the *gastro-intestinal* diseases of children. W. L. NICHOLSON, M. D.

——oo——

WHITE HALL, VA. January 4th, 1875.

A short time since I sent for some of your *LACTOPEPTINE*, which I used in the case of a lady who had been suffering with dyspepsia for over twelve months, and who had taken Pepsin, and other remedies usually prescribed in that disease, with very little benefit. I ordered the *LACTOPEPTINE*, and was pleased to find a decided improvement after a few days, which has steadily increased. At the present time she appears to have entirely recovered. Very truly, SMOKE, M. D.

——oo——

INDIANOLA, IOWA, December 11th, 1874,

I consider the *LACTOPEPTINE* a heaven-sent remedy for all digestive troubles. I gave it to a lady troubled with exhaustive nausea and vomiting from pregnancy, with immediate and perfect relief, after all other remedies had failed. She was almost in *articulo mortis*. The third day after taking the *LACTOPEPTINE* she was able to be up. I was called in council the other day to a case of Intussusception; the patient was vomting stercoracious matter; had retained no nutrition for several days. I gave the *LACTOPEPTINE* with immediate relief. Ingestion was retained I relieved the bowels by inflation, got an operation, and the patient will recover. I consider the *LACTOPEPTINE* was his *sheet anchor*. I am now using the *LACTOPEPTINE* in Cancer of the Stomach—the only medicine that gives the patient any relief. It seems to act as an anodyne in his case more so than morphine. C. W. DAVIS, M. D.

——oo——

CONTOCOOK, N. H., November 25th, 1874.

After a thorough trial, I believe *LACTOPEPTINE* to be one of the most important of the new remedies that have been brought to the attention of physicians during the last ten years. I have used it in several cases of vomiting of food from dyspepsia, and in the vomiting from pregnancy, with the best of success. The relief has been immediate in every instance. In some of the worst cases of Cardialgia, heretofore resisting all other treatment, *LACTOPEPTINE* invariably gave immediate relief. It has accomplished more, in my hands, than any other remedy of its class I ever met with, and I believe no physician can safely be without it. It takes the place of Pepsin, is more certain in its results, and is received by patients of all ages without complaint, being a most pleasant remedy. I have used *LACTOPEPTINE* in my own case, having been troubled with feelings of weight in the stomach and distress after eating, but always have obtained immediate relief upon taking the elixir in teaspoonful doses. GEO. C. BLAISDELL, M. D.

——oo——

MO. VALLEY, IOWA, November 12th, 1874

Some months since I saw in a medical journal a notice of your *LACTOPEPTINE*. Having in charge a patient in whose case I thought it was indicated, I prescribed it in 5 gr. doses. He used it about a week and was greatly benefited. I failed to procure more just then, so I gave him Pepsin instead, the patient thinking it to be the same prescription. After two days he returned to my office saying that "the last medicine did'nt hit the spot, but that which you gave me last week was just the thing, and has given me more relief than any medicine I have ever taken." I consider this a fair test (so far as it goes) of the merits of this new, and I think, invaluable remedy. G. W. COIT, M. D.

One drachm of Lactopeptine will transform four ounces of Starch into Glucose.

Pancreatine and Diastase are more important digestive agents than Pepsin.

COMMUNICATIONS FROM MEDICAL JOURNALS.

We have for several months been prescribing various preparations of medicine containing *LACTOPEPTINE* as an important aid to digestion. It may be advantageously combined with cod liver oil, calisaya, iron, bismuth, quinine and strychnia. *LACTOPEPTINE* is composed of pepsin, ptyalin, pancreatine, lactic acid and hydrochloric acid—pepsin, lactic and hydrochloric acids being in the gastric juice, ptyalin in the saliva, and pancreatine emulsionizing fatty substances. The theory of its action being rational, we have prescribed the various preparations referred to above with more evidence of benefit than we ever observed from pepsin.—*St. Louis Medical and Surgical Journal*, September, 1874.

——oo——

AN ARTICLE ON LACTOPEPTINE. BY LAURENCE ALEXANDER, M. D., OF YORKVILLE, S. C., IN THE *ATLANTA MEDICAL AND SURGICAL JOURNAL*, NOVEMBER, 1874.

Some time ago a small box, labelled "Physicians' Samples *LACTOPEPTINE*" was placed in my hands, with the request that I would give it a trial upon some one suffering from dyspepsia. Having, like other physicians, a large *per centum* of just such cases always on hand, in which various medicines and remedies had been used without success, I gladly consented, hoping that something had really been found at last to supply the want felt by every practitioner in the treatment of this troublesome complaint. After several months' experience in the use of this preparation, in which it has been thoroughly tested upon a large number of patients with such gratifying results, I am induced to recommend it to the consideration of the profession, feeling confident that, with due care in their diagnosis, and the many little cautions always necessary, such as restricting the excessive use of fluids while eating, etc., and a little patience on the part of the sufferer, its good effects will be seen beyond a doubt.

While I employ it extensively in many deranged conditions of the bowels incident to infancy and childhood, I find it equally efficacious in constipation and all diseases arising from imperfect nutrition in the adult. In sickness of pregnancy it answers well, far exceeding, in my hands, oxalate of cerium, extract lupulin, or the drop doses of carbolic acid, so highly extolled by some practitioners. In its combination with iron, quinine and strychnia, we have the advantage of using, in cases of great nervous depression and debility peculiar to the dyspeptic, our most valuable agent in a truly elegant form.

TO TEST THE DIGESTIVE POWER OF LACTOPEPTINE IN COMPARISON WITH ANY PREPARATION OF PEPSIN IN THE MARKET.

To five fluid ounces of water add one drachm of Lactopeptine, half drachm of Hydrochloric Acid, 10 ounces Coagulated Albumen, allowing it to remain from two to six hours at a temperature of 105 deg., agitating it occasionally.

Lactopeptine is prepared in the form of Powder, Sugar Coated Pills, Elixir, Syrup, Wine and Troaches.

LACTOPEPTINE is also combined with the following preparations:

EMULSION OF COD LIVER OIL WITH LACTOPEPTINE.

This combination will be found superior to all other forms of Cod Liver Oil in affections of the Lungs and other wasting diseases. Used in Coughs, Colds, Consumption, Rickets, Constipation, Skin Diseases and Loss of Appetite.

The Oil in this preparation being partly digested before taken, will usually agree with the most debilitated stomach. Although we manufacture seven other preparations of Cod Liver Oil, we would recommend the above as being superior to either of them. It is very pleasant to administer, compared with the plain Oil, and will be readily taken by children

——oo——

EMULSION OF COD LIVER OIL WITH LACTOPEPTINE AND LIME.

Each ounce of the Emulsion contains 16 grs. Lactopeptine and 16 grs. Phosphate Lime.

——oo——

ELIXIR LACTOPEPTINE.

The above preparation is admirably adapted in those cases where Physicians desire to prescribe Lactopeptine in its most elegant form.

REED & CARNRICK manufacture a full line of Fluid Extracts.

BEEF, IRON AND WINE WITH LACTOPEPTINE.

In those debilitated dyspeptic cases when an Iron Tonic, combined with the strengthening properties of Extract of Beef and Wine are indicated, this preparation will be found most efficacious.

——oo——

ELIXIR PHOSPHATE OF IRON, QUININE AND STRYCHNIA WITH LACTOPEPTINE.

There can be no combination more suitable than the above in cases of Nervous and General Debility, attended with Dyspepsia.

——oo——

ELIXIR LACTOPEPTINE, STRYCHNIA AND BISMUTH.

A valuable combination in cases of Dyspepsia attended with Nervous Debility.

——oo——

ELIXIR GENTIAN AND CHLORIDE OF IRON WITH LACTOPEPTINE.

An elegant and reliable remedy in cases of Dyspepsia attended with General Debility.

——oo——

SYRUP LACTOPEPTINE COMP.

Each ounce contains 24 grains Lactopeptine, 8 grains Phosphate of Iron, 8 grains Phosphate Lime, 8 grains Phosphate Soda, and 8 grains Phosphate Potash.

This preparation will be found well suited to cases of General Debility arising from impaired digestion, and also of great value in Pulmonary Affections.

——oo——

FORMULÆ.

The following valuable formulæ have been contributed by J. KING MERRITT, M.D., *who has used them with great success in his practice:*

NO. 1.—FOR INTERMITTENT FEVER WITH CONGESTION OF LIVER.

℞	Liquid Lactopeptine,	dr.	vi.
	Fl. Ex. Cinchona Comp,	dr.	i.
	Fl. Ex. Taraxacum,	—	
	Tinct. Zingiber, aa	dr.	iii.
	Hydrochloric Acid Dilut.,	dr.	i.
	Spts. Lavender Comp.,	dr.	ii.
	Sulphate Quinia,	grs.	xl.

M. *Dose.*—One teaspoonful every two or three hours.
SIG.—Quinine mixture or tonic mixture.

REMARKS.

This mixture should be taken every two hours in the case of a quotidian attack, as soon after the subsidence of the paroxysms as the stomach will accept it, or even during the sweating stage, if the stomach is not especially irritable, and should be continued until the hour of anticipated paroxysms at the same rate, except during the night, from 10 P. M. to 4 A. M., as a general rule. Six to eight doses to be taken during the first interval, and if the attack does not recur, then continue the mixture daily for one week, at a rate diminished by one hour each day.

NO. 2.—FOR INTERMITTENT FEVER WITH IRRITABLE STOMACH.

℞	Liquid Lactopeptine,	dr.	vi.
	Fl. Ex. Cinchona Comp,	dr.	i.
	Tinct. Zingiber,	dr.	iii.
	Spts. Lavender Comp,	dr.	v.
	Aromatic Sulphuric Acid,	dr.	i.
	Essence Menth, Pip. or Gaultheria,	gtts.	x.
	Sulphate Quinia,	grs.	xl.

M. *Dose.*—One teaspoonful with water *ad libitum* every two or three hours, as in Formula No. 1, and in accordance with the type of the attack. Begin at the rate indicated;

that is, if "Tertian," every three hours, and then after first interval, if the paroxysm does not recur, continue mixture at a diminished rate each succeeding day, as indicated in remarks appended to Formula No. 1, to wit: by increasing the period of time between each dose of medicine an hour every day until a week has passed, when the frequency of a dose will be reduced to three times a day, at which rate it should be continued until complete restoration of appetite and strength.

NO. 3.—FOR MALARIAL DYSPEPSIA.

℞

Liquid Lactopeptine,		dr. fl. vi.
Fl. Ex. Cinchona Com.,		—
Tinc. Nux. Vomica,	aa	dr. xi.
Spts. Lavender Comp.,		oz. ss.
Hydrocyanic Acid Dilut,		dr. ss.
Syr. Aromatic Rhubarb,		oz. ss.
Sulphate Quinine,		dr. ss.

M. *Dose.*—One tablespoonful with water *ad libitum* at meals (before or after), and *at bed time if required;* also, use in addition after the meals full doses of Pulv. Lactopeptine with Spts. Lavender Comp. and Lime Water, *in case the patient should suffer from positive signs of indigestion, although the dose of Formula No. 3 has already been taken at the meal time,* either immediately before or after eating, in accordance with the rule or foregoing instruction.

NO. 4.—FOR CHRONIC DIARRHŒA.

℞

Liquid Lactopeptine,	dr. vi.
Liq. Opii. Comp. (Squibbs'),	dr. iii.
Nitric Acid Dilute; or, Aqua Regia Dilut.,	dr. i.
Syr. Aromatic Rhubarb,	dr. ii.
Pulv. Nit. Bismuth,	dr. ss.
Aqua Camph.,	oz. ss.

M. *Dose.*—One tablespoonful with water after each flux from bowels, and as a rule, at bed time, even if the diarrhœa is apparently checked at that hour, and *this rule,* should be *persisted in* for two or three days, or until the diarrhœal tendency has been entirely subdued.

——oo——

PEPSIN—PANCREATINE—DIASTASE.

In addition to *LACTOPEPTINE* we manufacture PEPSIN, PANCREATINE and DIASTASE. They are put up separately in one ounce and pound bottles.

They will be found equal in strength with any other manufacture in the world.

They are all presented in a saccharated form, and are therefore very palatable to administer.

COMP. CATHARTIC ELIXIR.

The only pleasant and reliable Cathartic in liquid form that can be prescribed.

Each fl. oz. contains:

Sulph. Magnesia,	1 dr.
Senna,	2 "
Scammony,	6 grs.
Liquorice,	1 dr.
Ginger,	3 grs.
Coriander,	5 "

With flavoring ingredients.

Dose,—Child five years old, one or two teaspoonfuls; adult, one or two tablespoonfuls.

This preparation is being used extensively throughout the country. It was originated with the design of furnishing a liquid Cathartic remedy that could be prescribed in a palatable form. It will be taken by children with a relish.

MAINE INSANE HOSPITAL, AUGUSTA, Feb. 25th, 1875.

I am happy to say that we are much pleased with the Compound Cathartic Elixir. It has, so far, proved the best Liquid Cathartic we have ever used in our Institution. It acts effectively and kindly, without irritation or pain. H. M. HARLOW, M. D.

Private Formulas of Pills or other preparations made to order.

Strychnia Compound Pill.

Strychnia, - - -	1-100 grain.
Phosphorus, - - -	1-100 "
Ex. Cannabis Indica,	1-16 "
Ginseng, - - - -	1 "
Carb. Iron, -	1 "

Dose—One to two.

A reliable and efficient Pill in Anaphrodisia, Paralysis, Neuralgia, Loss of Memory, Phthisis, and all affections of the Brain resulting from loss of Nerve Power. Price, 80 cents per hundred.

Sent by mail, prepaid, on receipt of price.

Hæma, Quinia and Iron Pill.

Ext. Blood, - - - -	2 grains.
Quinine Sulph., - -	1 grain.
Sesqui Oxide Iron, - -	1 "

Dose—One to three.

Price, $2.00 per hundred.

Sent by mail, prepaid, on receipt of price.

——oo——

HÆMA PILLS.

We beg to present to the Medical Profession for their special consideration our several preparations of Blood Pills. The use of Blood medicinally, and the importance of its administration in a large class of diseases, has arrested the attention of many of the leading Physicians of Europe, and has received their warmest attestation. Prominent among these may be mentioned Prof. Panum, of the University of Copenhagen, who is using it with great success in the hospital of that city.

At the abattoir in this city, Boston, and in every part of the country, there can be seen numerous persons afflicted with Pulmonary Affections, Chlorosis, Paralysis, Anemia, and other ailments, who are daily drinking the blood of the ox, and many with more benefit than they have derived from any other source.

The blood used by us being *Arterialized Male Bovine only*, is secured as it flows from the animal in a vacuum pan, and the watery portion (85 per cent.), eliminated at a temperature not exceeding 100° F., the remaining mass, containing every constituent of the blood, being the base of our preparations.

HÆMA (Ext. Blood), 4 grs.

Dose.—Two to four

90 cts. per hundred.

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Ext. Blood, 2 grs.
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HÆMA, QUINIA, IRON AND STRYCHNIA.

Ext. Blood, 2 grs.
Quinine Sulph., 1 gr.
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Samples sent to Physicians, postage prepaid, on receipt of price.

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LACTOPEPTINE and most of our leading preparations can be obtained from the principal Druggists of the United States.

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TO PHYSICIANS.

THE scarcity and high prices of Cinchona barks and Sulphate of Quinia, and the prospect of only a slight reduction in these prices, makes the present a favorable opportunity of calling the attention of the profession to the *combination of all the bark alkaloids.*

Much attention has been given to this subject in Europe and India.

The growing appreciation by the medical profession of the United States of

CINCHO-QUININE

is due to the fact that it retains the important alkaloids IN COMBINATION, — a combination which in practice is *preferable to perfect isolation or separation* of these alkaloids.

In addition to its superior efficacy as a tonic and anti-periodic, it has the following advantages, which greatly increase its value to physicians : —

1st, *It exerts the full therapeutic influence of* Sulphate of Quinine, *in the same doses*, without oppressing the stomach, creating nausea, or producing cerebral distress, as the Sulphate of Quinine frequently does; and it produces much less constitutional disturbance.

2d, It has the great advantage of being *nearly tasteless.* The bitter is very slight, and not unpleasant to the most sensitive, delicate woman or child.

3d, It is *less costly;* the price will fluctuate with the rise and fall of barks, but will always be much less than the Sulphate of Quinine.

4th, It meets indications not met by that Salt.

The following well-known Analytical Chemists say : —

"UNIVERSITY OF PENNSYLVANIA, Jan. 22, 1875.
"I have tested CINCHO-QUININE, and have found it to contain *quinine, quinidine, cinchonine, cinchonidine.* F. A. GENTH,
Professor of Chemistry and Mineralogy."

"LABORATORY OF THE UNIVERSITY OF CHICAGO, Feb. 1, 1875.
"I hereby certify that I have made a chemical examination of the contents of a bottle of CINCHO-QUININE and by direction I made a qualitative examination for *quinine, quinidine,* and *cinchonine,* and hereby certify that I found these alkaloids in CINCHO-QUININE.
C. GILBERT WHEELER,
Professor of Chemistry."

"I have made a careful analysis of the contents of a bottle of your CINCHO-QUININE, and find it to contain *quinine, quinidine, cinchonine,* and *cinchonidine.*
S. P. SHARPLES, *State Assayer of Mass.*"

TESTIMONIALS.

"WELLFLEET, MASS., Nov. 17, 1876.
"I have used CINCHO-QUININE, and can say without any hesitation it has proved superior to the sulphate of quinine. J. G. JOHNSON, M.D."

"MARTINSBURG, MO., Aug. 15, 1876.
"I use the CINCHO-QUININE altogether among children, preferring it to the sulphate.
DR. E. R. DOUGLASS."

"LIVERPOOL, PENN., June 1, 1876.
"I have used CINCHO-QUININE, obtaining better results than from the sulphate in those cases in which quinine is indicated.
DR. I. C. BARLOTT."

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"I am well pleased with the CINCHO-QUININE, and think it is a better preparation than the sulphate. W. H. HALBERT."

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"I regard it as one of the most valuable additions ever made to our materia medica.
GEORGE C. PITZER, M.D."

"RICHMOND, VA., March 28, 1877.
"I believe that the *combination* of the several cinchona alkaloids is more generally useful in practice than the sulphate of quinine uncombined.
"Yours truly, LANDON B. EDWARDS, M.D.
Member Va. State Board of Health, and Sec'y and Treas. Medical Society of Va."

"CENTREVILLE, MICH.
"I have used several ounces of the CINCHO-QUININE, and have not found it to fail in a single instance. I have used no sulphate of quinine in my practice since I commenced the use of the CINCHO-QUININE, as I prefer it. F. C. BATEMAN, M.D."

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"In typhoid and typhus fevers I always prescribe the CINCHO-QUININE in conjunction with other appropriate medicines, the result being as favorable as with former cases where the sulphate had been used.
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During my many years' experience I have always recognized the importance of establishing n our midst a LABORATORY which would enable Physicians to procure at home, with a guarantee of purity and reliability, the many, elegant and really scientific preparations which have of late years become so popular with practitioners and patients. Supplied with the MOST APPROVED APPARATUS, and in charge of intelligent and experienced pharmaceutists, I may justly claim the products of my laboratory to be excelled by none in the country, and to be far superior to most others of foreign manufacture. I cannot attempt here to enumerate all of the extensive list of my preparations, and will only call attention to the leading ones, which have, by their absolute reliability, elicited the praise and approbation of the leading physicians in this city.

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This Extract is prepared from the best Canada Barley Malt, by an improved process, which prevents injury to its properties by excess of heat. It is less than half as expensive as the foreign extract; it is also more palatable, convenient of administration, and will not ferment.

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TROMMER EXTRACT OF MALT CO:—I enclose herewith my analysis of your Extract of Malt:

Malt Sugar (Glucose) 46.1; Dextrine, Hop-bitter, Extractive Matter, 23.6; Albuminous Matter, (Diastase), 2.469; Ash—Phosphates, 1.712, Alkalies, .377; Water, 25.7. Total, 99.958.

In comparing the above analysis with that of the Extract of Malt of the German Pharmacopœa, as given by Hager, that has been so generally received by the profession, I find it to substantially agree with that article,

Yours, truly,

SILAS H. DOUGLAS,
Prof. of Analytical and Applied Chemistry.

This invaluable preparation is highly recommended by the medical profession, as a most effective therapeutic agent, for the restoration of delicate and exhausted constitutions. It is very nutritious, being rich in both muscle and fat producing materials.

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A single dose of the Improved Trommer's Extract of Malt, contains a larger quantity of the active properties of Malt, than a pint of the best ale or porter; and not having undergone fermentation, is absolutely free from alcohol and carbonic acid.

The dose for adults is from a dessert to a tablespoonful three times daily. It is best taken after meals, pure, or mixed with a glass of milk, or in water, wine, or any kind of spirituous liquor. Each bottle contains ONE and ONE HALF POUNDS of the Extract. Price $1.00.

In addition to the Extract of Malt with Hops, the attentton of Physicians is invited to the following combinations:

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Svapnia is as uniform in strength as Morphia, being made by assay. Medium dose for an adult, one grain in powder, pill or solution.

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Instead of Bitter use Sweet Quinine.

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No mutilation whatever being necessary, the **Allekton** process for **Preserving the Dead** is rapid, inexpensive, and attended with the least possible annoyance to friends; moreover, its effects are permanent.

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The secret of making good Cod-Liver Oil lies in the proper application of the proper degree of heat; too much or too little will seriously injure the quality. Great attention to cleanliness is absolutely necessary to produce sweet Cod-Liver Oil. The rancid Oil found in the market is the make of manufacturers who are careless about these matters.

PROF. PARKER, of N. Y. says: "I have tried almost every other manufacturer's Oil, and give yours the decided preference."

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After years of experimenting, the Medical Profession of Europe and America, who have studied the effects of different Cod-Liver Oils, have unanimously decided the light straw-colored Cod-Liver Oil to be far superior to any of the brown Oils.

The Three best Tonics of the Pharmacopœia: IRON—PHOSPHORUS—CALISAYA.

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Ferro-Phosphorated Elixir of Calisaya with Bismuth, containing eight grains Ammonio-Citrate of Bismuth in each table-spoonful of the Ferro-Phosphorated Elixir of Calisaya Bark.

Elixir Phosphate Iron, Quinine and Strychnia. Each tea-spoonful contains one grain Phosphate Iron, one grain Phosphate Quinine, and one sixty-fourth of a grain of Strychnia.

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Elixir Valerianate of Ammonia and Quinine. Each tea-spoonful contains two grains Valerianate Ammonia and one grain Quinine

Ferro-Phosphorated Wine of Wild Cherry Bark. Each fluid-drachm contains twenty-five grains of the Bark, and two grains of Ferri-Pyrophosphate.

Wine of Pepsin. This article is prepared by us from fresh Rennets and pure Cherry Wine.

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COD-LIVER OIL, WITH IODINE, PHOSPHORUS AND BROMINE. This combination represents Phosphorus, Bromine, Iodine and Cod-Liver Oil, in a state of permanent combination, containing in each pint: Iodine, eight grains; Bromine, one grain; Phosphorus one grain; Cod-Liver Oil, one pint.

COD-LIVER OIL, WITH PHOSPHATE OF LIME. This is an agreeable emulsion, holding three grains Phosphate of Lime in each table-spoonful.

COD-LIVER OIL WITH LACTO-PHOSPHATE OF LIME.

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This article possesses great advantages over every other ferruginous preparation hereto-fore introduced, as it is a solution of Iron in as nearly as possible the form in which it exists in the blood. It is a preparation of invariable strength and purity, obtained by a process of dialysation, the Iron being separated from its combinations by endosmosis, according to the l w of diffusion of liquids. It has no styptic taste, does not blacken the teeth, disturb the stomach, or constipate the bowels.

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DOSE—One Pill after eating or when suffering from Indigestion, Lump in the Throat or Flatulence. For children reduce the Pill to powder and give one-fourth to one-half.

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THIRTY-SEVENTH ANNUAL SESSION, 1877-78.

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Chancellor of the University.

ALFRED C. POST, M.D., LL. D.,
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CHARLES INSLEE PARDEE, M.D.,
Professor of Diseases of the Ear; Dean of the Faculty.

MARTYN PAYNE, M.D., LL. D.,
Professor Emeritus of Materia Medica and Therapeutics.

JOHN C. DRAPER, M.D., LL. D.,
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Demonstrator of Anatomy.

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J. W. S. GOULEY, M.D.,
Professor of Diseases of the Genito-Urinary System.

MONTROSE A. PALEN, M.D.,
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HENRY G. PIFFARD, M.D.,
Professor of Dermatology.

A. E. MACDONALD, M.D.,
Professor of Medical Jurisprudence.

JOSEPH W. HOWE, M.D.,
Clinical Professor of Surgery.

THE COLLEGIATE YEAR is divided into three Sessions:—A Preliminary Session, a Regular Winter Session, and a Spring Session.

THE PRELIMINARY SESSION will commence September 19th, 1877, and will continue until the opening of the Regular Winter Session. It will be conducted on the plan of that Session.

THE REGULAR WINTER SESSION will commence on the Third of October, 1877, and end about the 1st of March, 1878.

The location of the new College edifice being immediately opposite the gate of Bellevue Hospital, and a few steps from the ferry to Charity Hospital, Blackwell's Island, the Students of the University Medical College are enabled to enjoy the advantages afforded by these Hospitals, with the least possible loss of time. The Professors of the practical Chairs are connected with the Hospitals, and the University Students are admitted to *all the Clinics* given therein, *free of charge.*

In addition to the daily Hospital Clinics, there are eight Clinics each week in the College Building. Five Didactic Lectures will be given daily in the College building, and Evening Recitations will be conducted by the Professors of Chemistry, Practice, Anatomy, Materia Medica, etc. Physiology, Surgery and Obstetries, upon the subjects of their Lectures.

THE SPRING SESSION embraces a period of twelve weeks, beginning in the first week of March and ending the last week of May. The daily Clinics, Recitations and Special Practical Courses will be the same as in the Winter Session, and there will be Lectures on Special Subjects by the Members of the Post-Graduate Faculty.

THE DISSECTING ROOM is open throughout the entire Collegiate year; material is abundant, and it is furnished free of charge.

STUDENTS WHO HAVE STUDIED TWO YEARS may be admitted to examination in Chemistry, Anatomy and Physiology, and if successful, will be examined at the expiration of their full course of study, on Practice, Materia Medica and Therapeutics, Surgery and Obstetrics; but those who prefer it may have all their examinations at the close of their full term.

FEES.

For course of Lectures	$140 00
Matriculation	5 00
Demonstrator's fee, including material for dissection	10 00
Graduation Fee	30 00
Post-Graduate Certificate	30 00

For further particulars and circulars, address the Dean,

PROF. CHARLES INSLEE PARDEE, M.D.,
University Medical College, 410 East 26th Street, New York City.

BELLEVUE HOSPITAL MEDICAL COLLEGE,

CITY OF NEW YORK.

SESSIONS OF 1877-1878.

THE COLLEGIATE YEAR in this Institution embraces a preliminary Autumnal Term, the Regular Winter Session, and a Spring Session

THE PRELIMINARY AUTUMNAL TERM for 1877-1878 will open on Wednesday, September 19th, 1877, and continue until the opening of the Regular Session. During this term, instruction, consisting of didactic lectures on special subjects and daily clinical lectures, will be given, as heretofore, by the entire Faculty. Students expecting to attend the Regular Session are strongly recommended to attend the Preliminary Term, but attendance during the latter is not required. *During the Preliminary Term, clinical and didactic lectures will be given in precisely the same number and order as in the Regular Session.*

THE REGULAR SESSION will commence on Wednesday, October 3d, 1877, and end about the 1st of March, 1878.

FACULTY.

ISAAC E. TAYLOR, M. D.,

Emeritus Professor of Obstetrics and Diseases of Women and Children, and President of the Faculty

JAMES R. WOOD, M. D., LL. D.,
Emeritus Prof. of Surgery.

FORDYCE BARKER, M. D.,
Professor of Clinical Midwifery and Diseases of Women.

AUSTIN FLINT, M. D.,
Professor of the Principles and Practice of Medicine and Clinical Medicine.

W. H. VAN BUREN, M. D.,
Professor of Principles and Practice of Surgery, Diseases of Genito-Urinary System, and Clinical Surgery.

LEWIS A. SAYRE, M. D.,
Professor of Orthopedic Surgery and Clinical Surgery.

ALEXANDER B. MOTT, M. D.,
Professor of Clinical and Operative Surgery.

WILLIAM T. LUSK, M. D.,
Professor of Obstetrics and Diseases of Women and Children, and Clinical Midwifery.

EDMUND R. PEASLEE, M. D., LL. D.,
Professor of Gynæcology.

WILLIAM M. POLK, M. D.,
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ALPHEUS B. CROSBY, M. D.,
Professor of General, Descriptive, and Surgical Anatomy.

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Professor of Chemistry and Toxicology.

EDWARD G. JANEWAY, M. D.,
Professor of Pathological Anatomy and Histology. Diseases of the Nervous System, and Clinical Medicine.

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Professor of Psychological Medicine and Medical Jurisprudence.

EDWARD L. KEYES, M. D.,
Professor of Dermatology, and Adjunct to the Chair of Principles of Surgery.

EDWARD G. JANEWAY, M. D.,
Professor of Practical Anatomy. (Demonstrator of Anatomy.)

LEROY MILTON YALE, M. D.,
Lecturer Adjunct upon Orthopedic Surgery.

A. A. SMITH, M. D.,
Lecturer Adjunct upon Clinical Medicine.

A distinctive feature of the method of instruction in this college is the union of clinical and didactic teaching. All the lectures are given within the Hospital grounds. During the Regular Winter Session, in addition to four didactic lectures on every week-day, except Saturday, two or three hours are daily allotted to clinical instruction.

The Spring Session consists chiefly of Recitations from Text-books. This term continues from the first of March to the first of June. During this Session, daily recitations in all the departments are held by a corps of examiners appointed by the regular Faculty. Regular clinics are also given in the Hospital and in the College building.

FEES FOR THE REGULAR SESSION.

Fees for Tickets to all Lectures during the Preliminary and Regular Term, including Clinical Lectures	$140 00
Matriculation Fee	5 00
Demonstrator's Ticket (including material for dissection)	10 00
Graduation Fee	30 00

FEES FOR THE SPRING SESSION.

Matriculation (Ticket good for the following Winter)	$ 5 00
Recitations Clinics, and Lectures	35 00
Dissection (Ticket good for the following Winter)	10 00

Students who have attended two full Winter courses of lectures may be examined at the end of their second course upon Materia Medica Physiology, Anatomy and Chemistry and, if successful, they will be examined at the end of their third course upon Practice of Medicine, Surgery and Obstetrics only.

For the Annual Circular and Catalogue, giving regulations for graduation and other information, address Prof. AUSTIN FLINT, JR., Secretary, Bellevue Hospital Medical College.

Therapeutical Notes on some Specialties in McKesson & Robbins' Pills, (Gelatine-Coated).

PHOSPHORUS, ... 1-100, 1-50, 1-20, 1-12 gr.

The pure transparent Gelatine we use is in no degree porous, it preserves the Phosphorus perfectly in the free state; while Sugar, owing to its crystaline nature, is very porous and will admit of rapid change in substances, of a delicate character, covered with it. We have the Phosphorus in state of solution in the excipient we employ, this insures a gradual elimination of the Phosphorus in the stomach, thus avoiding the severe irritation that is so often experienced after taking the ordinary Phosphorus Pills, which are prepared by mixing the Phosphorus in substance with the excipient, in which small fragments of Phosphorus often remain. Note remarks by Dr. Squibb, in his paper before Am. Pharm. Ass'n, Sept., '76, in which he states that Phosphorus should never be administered in substance, and if a coating be used, he commends Gelatine.

Many of the most eminent Physicians throughout the country, among whom are leading specialists in the treatment of Neurotic diseases, assert that McKesson & Robbins' Phosphorus Pills are the most rational medium yet found for exhibiting Phosphorus.

PHOSPHORUS COMPOUND, McKesson & Robbins' Pills, both $\frac{1}{60}$ & $\frac{1}{100}$ gr.

PHOSPHORUS COMPOUND AND IRON, McKesson & Robbins' Pills.

ERGOTIN PILLS, ... 3 grs.

We manufacture our Ergotin with great care from the best quality of fresh, selected Ergot, and it contains in the most potent form all the active constituents of Ergot of Rye, each grain representing 10 grs. of Ergot, and each pill being equal to half a teaspoonful of officinal fluid extract. The value of Ergotin, in the place of the crude drug and the Fluid Preparations, is conceded; and it is being largely administered both in this country and in Europe. It has taken a prominent place in the treatment of Neurotic diseases. Many of our most reliable practitioners, and particularly those of extended experience in Gynæcology, assert that they have never found a preparation of Ergot, in which, by experience, they felt as much confidence as in McKesson & Robbins' Ergotin Pills. The advantages of prescribing it in this form will be readily acknowledged. (Dose, 1 to 3.)

We offer our Ergotin, prepared specially for hypodermic use, in one ounce bottles.

PHOSPHATES IRON, QUININE & STRYCHNINE PILLS.

Each pill represents an equivalent of about two teaspoonfuls of Elixir, and is a much more preferable form, in being more agreeable to take and not objectionable to the weakest stomach, when Syrup or Elixir are rejected. As a tonic, this pill is deservedly popular. We also offer Iron, Quinine and Strychnine Pills, the Iron being in the form of Quevenne's or reduced by hydrogen.

EXTRACT SUMBUL, (Musk Root,) ..... 1 gr.

This drug has for some time been extensively used in Russia, and for several years in England and America, in the treatment of hysteria and general spasmodic disorders, particularly in that class of cases where assafœtida has heretofore been much used. Those most experienced in its use claim that it possesses great merit. (Dose, 2 to 3.)

SALICYLIC ACID PILLS, ... 2½ and 5 grs.

Our pills present the best form for administering this now very important remedy, which has proved so efficacious in Rheumatism, and which is also extensively used as an Antiseptic and Febrifuge. It is claimed that the solutions, formed by the use of Sodium, Ammonium and other salts, produce combinations which do not represent the full value of the free Acid.

EXTRACT GRINDELIA ROBUSTA PILLS, ... 3 grs.

The Solid Extract is of our own manufacture and is ten times the strength of the Herb; it can be used much more readily and with better effect than any of the liquid preparations. The use of this remedy in Hay Fever, and all Asthmatic difficulties, has increased largely in the Eastern States and Europe, and its therapeutic value is couceded. (Dose, 1 to 3.)

EXTRACT GUARANA PILLS, ... 3 grs.

This Solid Extract is also manufactured in our own laboratory, and is many times the average strength of the drug. We offer these Gelatine-Coated Pills with confidence in their being the only accurate mode of preparing this widely used and much appreciated remedy, as the *drug* varies so much in strength; some preparations in the market have been found to consist largely of impurities. We carefully test each shipment we receive, and our Solid Extract is of superior and uniform quality. The value of Guarana, in many phases of sick, nervous and sun headache, as well as in Neuralgia, and in irritations of the mucous membrane, has become well known to practitioners, and its happy effects, in Diarrhœa, Dysentery and kindred diseases, have been attested in numerous cases. (Dose, 2 to 3.)

QUININE, SULPHO-CARBOLATE, ... 1, 2 and 3 grs.

This Salt of Quinine has been very much used in some of our extreme malarial districts during the past two years. Those, who have tested it very carefully, claim that it possesses a most positive specific action in the treatment of fever and ague, and has proved itself eminently superior to the Sulphate of Quinine in all malarial fevers.

PHOSPHIDE ZINC, ... 1-6, 1-4 and 1-2 gr.

The Phosphide of Zinc has been very successfully used by Drs. Hammond, (see Dr. H.'s last book,) Routh, and other prominent authorities on treatment of brain diseases, all of whom assert its efficacy. It has been used with remarkable results in severe cases of Neuralgia, (see paper by Dr. Adolphus, St. L. Med. Jour., XIII, 471). P. Vigier, *Bull. Gen. de Therap.*, states that Phosphide of Zinc is more prompt and reliable in its action than free Phosphorus.

PHOSPHIDE ZINC AND NUX VOMICA, (Hammond's formula.)

IODIDE OF IRON, (Blancard's formula,) ..... 1 gr.

Preferable to the Syrup and much more soluble and active than the imported pills, which are coated with a resin, and are usually very old before they reach the consumer.

MONOBROMATED CAMPHOR, ... 2 and 3 grs.

Is now being considerably used in treatment of Spermatorrhœa; strongly recommended in cases of Cerebral-Anæmia; used successfully in infantile Convulsions from teething; Hysteria, Headache from over study or nervousness and Nymphomania. (Dose, 3 to 4 grs.)

QUININE, SULPHATE & BI-SULPHATE, ¼, ½, 1, 1½, 2, 3, 4 & 5 grs.

McKesson & Robbins' Quinine Pills are well and favorably known, having displaced the use of other pills in New York and all parts of the country. The fact that they always yield more speedy and satisfactory results, and the ease, with which even a child can take them, have aided in making them the favorite pills. Several physicians have related to us cases—particularly of Diphtheria—where they found it impossible to administer the round pill, but the patients swallowed McKesson & Robbins' Pills without difficulty. We call special attention to our five grain Quinines, which, owing to form and nature of coating, are as easily swallowed as the ordinary two grain. Our Bi-Sulphate of Quinine Pills contain an additional equivalent of sulphuric acid, thus rendering the officinal sulphate much more soluble, a decided advantage over the ordinary Quinine Pills. See Am. Jour. Pharm., XXV, 292.

QUININE, CARBOLATE, ... 1 gr.

QUININE, SALICYLATE, ... 1 gr.

QUININE, VALERIANATE, ... ½ gr.

CINCHONIDIA, SULPHATE, ... 1, 2 and 3 grs.

Now coming into extensive use. McKesson & Robbins' Pills have proved the best form for administering it.

COMPOUND HYPOPHOSPHITES PILLS, (Lime, Soda, Potassa and Iron.)

Form the best possible medium for administering this remedy, which occupies so prominent a place for the treatment of lung diseases and bronchial affections.

DOVER'S POWDER PILLS, ... 2½ and 5 grs.

Affording an agreeable medium for the administration of this exceedingly nauseous compound, the value of these Pills will be readily seen by Physicians.

LACTO-PHOSPHATE OF LIME PILLS, ... 5 grs.

This form possesses many advantages over the Syrup. Used with much success in Dyspepsia.

PEPSIN, BISMUTH AND STRYCHNINE PILLS, ... 5 grs.

Representing this combination in the most agreeable and reliable form.

SOLIDIFIED COPAIBA WITH OLEO-RESIN CUBEB PILLS, ... 3 and 5 grs.

We prepare both these ingredients in our own laboratory, with great care, and can assert their superior quality. The value of the Oleo-Resin Cubeb often offered in market is very slight, due to the fact that the largest proportion is powdered Cubeb Berries.

Price Lists furnished upon application. See list of formulas, last page.

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Formulas of McKesson & Robbins' Pills, (Gelatine-Coated).

Acid, Arsenious....1-50, 1-40, 1 30 and 1-20 gr.
*Acid, Salicylic.....2 1-2 and 5 grs.
Aloes, U. S.....4 grs.
Aloes and Assafœtida, U. S.....4 grs.
Aloes and Iron.....3 grs.
{ Pulv., Aloes, Soc., 1-2 gr.
Pulv., Zingib. Jam., 1 gr.
Ferri, Sulph., Exsic., 1 gr.
Extract, Conii, 1-2 gr.
Aloes and Myrrh, U. S.....
Aperient.....
{ Ext., Nucis Vom., 1-3 gr.
Ext., Hyoscyami, 1-2 gr.
Ext., Coloc. Comp., 2 grs.
Assafœtida.....2 grs.
{ Assafœtida, 1 1-2 grs.
Pulv., Saponis, 1-2 gr.
Assafœtida, U. S.....4 grs.
{ Assafœtida, 3 grs
Pulv., Saponis, 1 gr.
Assafœtida and Nux Vomica.....
{ Assafœtida, 3 grs.
Ext., Nucis Vom., 1-4 gr.
*Atropia.....1-60 gr.
*Belladonna Extract.....½ gr.
Bismuth, Subnitrate.....3 and 5 grs.
Blue Pill, U. S.....1, 3 and 5 grs.
Calomel.....1-2, 1, 2, 3 and 5 grs.
Camphor and Henbane.....
{ Camphora, 1 gr.
Ext. Hyoscyami, 1 gr.
*Camphor, Mono-Bromated.....2 and 3 grs.
Cannabis Indica Extract.....1-2 gr.
Cathartic Compound, U. S.....
Cathartic Vegetable.....3 grs.
{ Ext., Col. Comp., pulv., 1 1-2 grs.
Res., Podophylli, - - 3-8 "
Res., Leptandræ, - - 1-8 "
Jalapæ pulv, - - - 1-4 "
Aloes Socotrin pulv. - 1-2 "
Ext., Hyoscyami, - - 1-4 "
Ol., Menthæ Pip.
Chinoidine.....1-2, 1 and 3 grs.
Cinchonia, Sulphate.....3 grs.
Cinchonidia, Sulphate.....1, 2 and 3 grs.
Colocynth Comp. Extract.....3 grs.
Colocyuth, Ipecac and Blue.....
{ Ext. Coloc. Comp., pulv., 2 grs.
Pulv. Ipecacuanhæ, 1-6 gr.
Pil., Hydrarg., 2 grs.
Cook's.....3 grs.
{ Pulv., Aloes, Soc. 1 gr.
Hydrarg., Chlor., Mite, 3-4 gr.
Pulv., Rhei., 1 gr.
Pulv., Saponis, 1-4 gr.
Copaiba.....3 grs.
Copaiba and Oleo-Resin Cubebs.....3 grs.
{ Pil., Copaibæ, 2 grs.
Oleo-Resin Cubebæ, 1 gr.
Copaiba and Oleo-Resin Cubebs.....5 grs.
{ Pil., Copaibæ, 3 grs.
Oleo-Resin Cubebæ, 2 grs.
*Corrosive Sublimate....1-40, 1-30 and 1-20 gr.
*Digitalia, pure.....1-60 gr.
Dinner (Cole's).....
{ Pil., Hydrarg., 1 1-5 grs.
Pulv. Aloes, Soc., 1 1-5 grs.
Pulv. Jalapæ, 1 1-5 grs.
Ant. et Pot., Tart., 1-50 gr.
Dinner (Lady Webster's).....3 grs.
{ Pulv., Aloes, Soc., 1 4-5 grs.
Pulv., Mastiches, 3-5 gr.
Pulv. Rosæ, Gallicæ, 3-5 gr.
*Emmenagogue.....
{ Ergotin, - - 1 gr.
Ext., Helleb., Nlg., 1 gr.
Ferri, Sulph., Exsic., 1 gr.
Aloes, Soc., Pulv., 1 gr.
Ol. Sabinæ, 1-4 gr.
*Ergotin..... 3 grs.
Ferruginous (Blaud).....3 and 5 grs.
{ Ferri, Sulphas.
Potassæ, Carb. aa
*Grindelia Robusta Extract.....3 grs.
*Guarana Extract (Paullinia).....3 grs.
*Henbane, Extract.....1 gr.
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{ Pil., Hydrarg., 3 grs.
Ext., Coloc. Comp., 2 grs.
" Bellad., 1-4 gr.
Hooper's.....2¼ grs.

Hypophosphites, Compound.....
{ Calcii, Hypophos., 1 gr.
Sodii, " 3-4 gr.
Potassii, " 1-2 gr.
Ferri, " 1-4 gr.
*Iodide of Iron (Blancard's formula).....1 gr.
Iodoform .....1 gr.
Iodoform and Iron .....2 grs.
Ipecac & Opium (Dover's Powder, U.S.) 2½ grs.
Ipecac & Opium (Dover's Powder, U.S.) 5 grs.
Iron by Hydrogen (Quevenne's)... 1 and 2 grs.
Iron, Citrate and Quinine.....1 and 2 grs.
Iron, Proto-Carb. (Vallet's Mass.) 2 grs. & 3 grs.
Iron, Proto-Carb. (Vallet's Mass.).....5 grs.
*Iron, Proto-Chloride.....1 gr.
Iron, Quinine and Strychnine.....
{ Ferrum, Redactum, 1 gr.
Quiniæ, Sulphas, 1 gr.
Strychnia, 1-60 gr.
Laxative (Coie's) .....
{ Res., Podophylli, - 1-10 gr.
Hydrarg., Chlor., Mite, 1 gr.
Ext. Col. Comp., pulv., 3 grs.
Lime, Lacto-Phosphate.....5 grs.
*Mercury, Bin-Iodide .....1-25 and 1-16 gr.
*Mercury, Prot-Iodide.....1-8, and 1-4 gr.
Morphine, Acetate.....1-8 and 1-4 gr.
*Morphine, Sulphate, 1-16, 1-10, 1-8, 1-6, 1-4 gr.
Morphine Valerianate.....1-8 gr.
Neuralgia (Brown-Sequard).....
{ Ext., Hyoscyami, 2-3 gr.
" Conii, 2-3 gr.
" Ignatii Amaræ, 1-2 gr.
" Opii, 1-2 gr.
" Aconiti, 1-3 gr.
" Cannab. Indicæ, 1-4 gr.
" Stramonii, 1-5 gr.
" Belladonnæ, 1-6 gr.
Neuralgia (Dr. Gross').....
{ Quiniæ, Sulphas, 2 grs.
Morphiæ, Sulphas, 1-20 gr.
Strychnia, 1-30 gr.
Acid Arseniosum, 1-20 gr.
Ext., Aconiti, 1-2 gr.
Neuralgia, (Dr. Gross',) as above, without Morphine.
Nux Vomica Extract.....1-2 gr.
Opium, U. S.....1 gr.
*Opium Extract.....1-4, 1-2 and 1 gr.
Opium and Acetate of Lead.....2 grs.
{ Opii, Pulv., 1 gr.
Plumbi, Acet., 1 gr.
Opium and Camphor.....
{ Opium, 1 gr.
Camphora, 2 grs.
Pepsin .....5 grs.
Pepsin and Bismuth.....5 grs.
{ Pepsin, 2 grs.
Bismuth, Sub-Nit., 3 grs.
Pepsin, Bismuth and Strychnine.....5 grs.
{ Pepsin, 2 1-2 grs.
Bismuth, Sub-Nit., 2 1-2 grs.
Strychnia, 1-60 gr.
Phosphates Iron, Quinine and Strychnine.....
{ Ferri, Phosphas., 2 grs.
Quiniæ, Phosphas, 1 gr.
Strychniæ, Phosphas, 1-60 gr.
Phosphorus.....1-100, 1-50, 1-20 and 1-12 gr.
Phosphorus Compound.....
{ Phosphorus, 1-60 gr.
Ext., Nucis Vomicæ, 1-4 gr.
Phosphorus Compound.....
{ Phosphorus, 1-100 gr.
Ext., Nucis Vomicæ, 1-4 gr.
Phosphorus Compound and Iron.....
{ Phosphorus, 1-100 gr.
Ferri, Phosphas, 1-2 gr.
Ext., Nucis Vomicæ, 1-8 gr.
Podophyllin.....1-4, 1-2 and 1 gr.
Podophyllin Compound.....
{ Podophyllin, 1-2 gr.
Ext., Hyoscynmi, 1-8 gr.
Ext., Nucis Vomicæ, 1-16 gr.
Podophyllin and Blue.....
{ Podophyllin, 1-2 gr.
Pil., Hydrarg., 2 1-2 grs.
Podophyllin, Capsicum and Belladonna.....
{ Podophyllin, 1-4 gr.
Ext., Bellad. Alc., 1-8 gr.
Pulv., Capsici, 1-2 gr.
Podophyllin, Ext., Coloc. and Belladonna.....
{ Podophyllin, 1-2 gr.
Ext., Coloc. Comp., 2 grs.
" Belladon., 1-4 gr.

*Quinine, Carbolate.....1 gr.
*Quinine, Salicylate.....1 gr.
*Quinine, Sulphate & Bi-Sulphate, 1-4 & 1-2 gr.
Quinine, Sulphate and Bi-Sulphate.....1 gr.
Quinine, Sulphate and Bi-Sulphate.....1½ grs.
Quinine, Sulphate and Bi-Sulphate.....2 grs.
Quinine, Sulphate and Bi-Sulphate.....3 grs.
Quinine, Sulphate and Bi-Sulphate.....4 grs.
Quinine, Sulphate and Bi-Sulphate.....5 grs.
*Quinine, Sulpho-Carbolate ....1, 2 and 3 grs.
Quinine and Aloes.....1 gr.
{ Quiniæ, Sulphas, 3-4 gr.
Pulv., Aloes, Soc., 1-4 gr.
Quinine, Arsenic and Nux Vomica.....
{ Quiniæ, Sulphas 1 gr.
Acid, Arsenicosum 1-60 gr.
Ext., Nucis Vomicæ, 1-4 gr.
Quinine and Iron.....
{ Quiniæ Sulphas, 1 gr.
Ferrum Redactum, 1 gr.
Quinine and Carbonate Iron,.....
{ Quiniæ, Sulphas, 1 gr.
Ferri, Sub. Carb, 2 grs.
Quinine, Phosphorus and Nux Vomica.....
{ Quiniæ, Sulphas, 1 gr.
Phosphorus, 1-60 gr.
Ext., Nucis Vomicæ, 1-40 gr.
Quinine, Phosphorus and Nux Vomica.....
{ Quiniæ, Sulphas.. 1 gr.
Phosphorus, 1-60 gr.
Ext., Nucis Vomicæ, 1-4 gr.
Quinine Compound.....
{ Quiniæ, Sulphas, 1 gr.
Ferrum, Redactum, 1 gr.
Acid, Arseniosum, 1-32 gr.
Quinine Compound and Extract Dandelion.....
{ Quiniæ, Bi-Sulph., 1 1-4 grs.
Ferri, Sulph., Exsic., 2 grs.
Acid, Arseniosum, 1-24 gr.
Extract, Taraxici, 1 1-4 grs.
Quinine Compound and Strychnine.....
{ Quiniæ, Sulphas, 1 gr.
Ferrum, Redactum, 1 gr.
Strychnia, 1-20 gr.
Acid, Arseniosum, 1-20 gr.
Quinine, Valerianate.....1-2 gr.
Rheumatic .....
{ Ext., Coloc. Comp., 1 1-2 grs.
Ext., Colch. Acet., 1 gr.
Ext., Hyoscyami, 1-3 gr.
Hydr., Chlor., Mite, 1-3 gr.
Rhubarb, U. S.....
Rhubarb Compound, U. S.....
Santonin.....1 gr.
Santonin and Calomel.....
{ Santonin, 1 gr.
Calomel, 1 gr.
Chocolate.
*Sodium, Salicylate.....5 grs.
Strychnine.....1-60, 1-40 and 1-30 gr.
*Strychnine Compound .....
{ Strychnia, 1-100 gr.
Phosphorus, 1-100 gr.
Ext. Cannab. Indic., 1-16 gr.
Ginseng, 1 gr.
Ferri, Carb., 1 gr.
*Sulphur, Iodide.....1-25 and 1-10 gr.
*Sumbul, Extract.....1 gr.
Syphilitic (Ricord's modified).....
{ Hydr. Prot-Iodide, 1-2 gr.
Lactucarium, - 1-2 gr.
Ext., Opii, - - 1-10 gr.
Ext., Cicutæ, - 1½ grs.
Tonic (Dr. Aiken).....
{ Quiniæ, Sulph., 1 gr.
Acid, Arseniosum, 1-60 gr.
Ferrum, Redactum, 2-3 gr.
Strychnia, 1-50 gr.
Triplex .....
{ Extract Aloes, 2 grs.
Podophyllin, 1-2 gr.
Pil., Hydrarg., 1-2 gr.
Triplex (Dr. Francis) .....
{ Pulv., Aloes, Soc. Pil., Hydrarg.
Pulv., Scammonii. Ol., Tigili.
Pulv., Myrrhæ. Ol., Carui.
Valerian Extract.....3 grs.
*Zinc, Phosphide.....1-6, 1-4 and 1-2 gr.
*Zinc, Phosphide and Ext. Nux Vomica.....
{ Zinci, Phosphuretum, 1-10 gr.
Ext., Nucis Vomicæ, 1-4 gr.
Zinc, Valerianate.....1 gr.

RECENT ADDITIONS TO LIST.

Aconitin .....1-60 gr.
Blue Pill Compound.....
{ Pil. Hydrarg., 1 gr.
Pulv. Opii., 1-2 gr.
Pulv. Ipecac., 1-4 gr.
Blue Pill, U. S. .....1-2 gr.
Caffein, Citrate.....1 gr.
Cinchona Bark Alkaloids.....
{ Quiniæ Sulph., 1-2 gr.
Quinidiæ Sulph., 1-2 gr.
Cinchoniæ Sulph., 1-2 gr.
Cinchonidiæ Sulph., 1-2 gr.
Cinchonidin Sulphate.....5 grs.
Codein.....1-16 and 1-8 gr.
Hydrastin (White Alkaloid)... 1-2 and 1 gr.
Jaborandi Extract.....3 grs.
Ox Gall Comp.....3 grs.
{ Fel Bovin. dep., 2 grs.
Pulv. Zingiber, 1 gr.
Phosphorus, Iron and Quinine.....
{ Phosphorus, 1-100 gr.
Ferri Carb. (Vallet's), 1 gr.
Quiniæ Sulph., 1 gr.
Phosphorus, Iron, Quinine and Nux Vomica..
{ Phosphorus, 1-100 gr.
Ferri Carb. (Vallet's) 1 gr.
Quiniæ Sulph., 1 gr.
Ext. Nucis Vomicæ 1-2 gr.
Piperin Compound.....
{ Piperin, 1-4 gr.
Hydr. Chlor. Mite, 1-4 gr.)
Podophyllin.....1-8 gr.
Podophyllin and Leptandrin.....
{ Podophyllin, 1-2 gr.
Leptandrin, 1 gr.
Poke Root Compound.....
{ Ext. Phytolaccæ, Alc., 2 grs.
Ext. Stillingiæ, " 1 gr.
Ext. Stramonii, " 1-8 gr.
Potassium, Bromide.....2 and 5 grs.
Quinine Sulpho-Carbol.....5 grs.
Quinine and Strychnine.....
{ Quiniæ Sulph., 1 gr.
Strychnia, 1-60 gr.
Quinine, Iron and Nux Vomica.....
{ Quiniæ Sulph., 1 gr.
Ferri Carb. (Vallet's), 2 grs.
Ext. Nucis Vom., 1-4 gr.
Salicin.....2 1-2 and 5 grs.
Salicylic Acid with Morphine.....
{ Acid Salicylicum, 2 1-2 grs.
Morphiæ Sulphas, 1-12 gr.
Salicylic Acid with Morphine.....
{ Acid Salicylicum, 5 grs.
Morphiæ Sulphas, 1-8 gr.
Sandul Wood Extract (McK. & R.).... 2 grs.
Tartar Emetic.....1-100, 1-20 and 1-4 gr.

One of McKesson & Robbins' Pills, placed in the mouth, will be relieved of its coating in less than two minutes.

The coating, not being porous, will protect such preparations as Phosphorus and Iron Compounds better than Sugar.

FOOD IS THE BEST TONIC!

MENSMAN'S

PEPTONIZED

Beef Tonic!

The great necessity for a fluid that would possess **all the elements necessary for the support of the system,** having been long felt by the medical profession, we call attention to this preparation, containing the entire nutritious properties of the muscular fibre, blood, bone, and brain of a healthy bullock, dissolved and semi-digested by aid of heat and pepsin, and preserved by spirit; thus constituting a most perfect nutritive, reconstructive tonic.

It is not a mere stimulant, like the now fashionable extract of beef, but contains blood-making, force-generating, and life-sustaining properties, pre-eminently calculated to support the system under the exhausting and wasting process of fevers and other acute diseases, and to rebuild and recruit the tissues and forces, whether lost in the destructive march of such affections, or induced by overwork, general debility, or the more tedious forms of chronic disease.

It is friendly and helpful to the most delicate stomach, and where there is a fair remnant to build on, will reconstruct the most shattered and enfeebled constitution. It is entirely free from any drugs.

It is prepared after a thoroughly tested and scientific method.

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This Association is now in full and active operation, under a liberal charter by the Legislature of Kentucky, and offers very great and special advantages to all physand their families throughout the United States.

The object of the Association is, in the event of the death of a physician, or any of his family who may become members, to secure to the survivors, at a cost very far less than that required for securing the payment of an equal amount, by investing in any of the Life Insurance, Real Estate, or stock companies of the country. For information, circulars and blank applications for membership, address

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Three Winter Courses of Five Months required. Beside instruction of each student in Physical Diagnosis, Clinical Medicine and Surgery, Gynæcology, etc. Laboratory teaching in Pharmacy, General and Medical Chemistry, Histology, and Morbid Anatomy. Extensive Laboratory and Clinical facilities.

For particulars, see Announcement, for which address

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Secretary of the Medical Faculty,
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P. O. Box 2838. Philadelphia, Pa.

jy—sep—nov 77

MIAMI MEDICAL COLLEGE

OF CINCINNATI.

The next Session will begin October 3, 1877, with Preliminary Course from September 13th. The College is well supplied with means for demonstrative teaching, having large museums, a students' laboratory, microscopes, etc.

The Clinical advantages are superior. Two large Dispensaries being under the exclusive care of the Faculty, and daily lectures in the largest Hospital of the West.

FEES $45.

The Recitation Course will commence March 15, 1878.

FACULTY.—John A. Murphy, M.D., Dean; Wm. H. Mussey, M.D.; E. Williams, M.D.; Wm. Clendenin, M.D.; Wm. H. Taylor, M.D.; T. H. Kearney, M.D.; J. C. MacKenzie, M.D.; J. B. Hough, M.D.; W. B. Davis, M.D.; Byron Stanton, M.D.

For circulars, etc., address

JOHN A. MURPHY, M.D., Dean, 163 West Seventh St., or
WM. H. TAYLOR, M.D., Secretary, 329 West Seventh St.

Jy.—Sep.—Nov.

WYETH'S DIALYSED IRON.

(FERRUM DIALYSATUM.)

A Pure Neutral Solution of Peroxide of Iron in the Colloid Form.
The Result of Endosmosis and Diffusion with Distilled Water.

PREPARED SOLELY BY

JOHN WYETH & BRO.,

PHILADELPHIA.

This article possesses great advantages over every other ferruginous preparation heretofore introduced, as it is a solution of Iron in as nearly as possible the form in which it exists in the blood. It is a preparation of invariable strength and purity, obtained by a process of dialysation, the Iron being separated from its combinations by endosmosis, according to the law of diffusion of liquids. It has no styptic taste, does not blacken the teeth, disturb the stomach, or constipate the bowels.

It affords, therefore, the *very best* mode of administering

IRON

in Cases where the use of this remedy is indicated.

Physicians and Apothecaries will appreciate how important is the fact that, as an antidote for Poisoning by Arsenic, Dialysed Iron is quite as efficient as the Hydrated Sesquioxide (hitherto the best remedy known in such cases) and has the great advantage of being always ready for immediate use. It will now doubtless be found in every drug store to supply such an emergency.

Full directions accompany each Bottle.

In addition to the Solution, we prepare a Syrup which is pleasantly flavored, but as the Solution is tasteless, we recommend it in preference; Physicians will find our DIALYSED IRON in all the leading Drug Stores in the United States and Canada.

It is put up in bottles retailing for ONE DOLLAR, containing sufficient for two months treatment. Large size is intended for hospitals and dispensing. Retail at $3.00.

Price Lists, &c., &c., sent on application.

JOHN WYETH & BRO., *Phila.*

Now on hand for the trade by **G. R. FINLAY & CO., E. J. HART & CO.**

Samples to Physicians free on application to

Alex. K. Finlay,
Dispensing Druggist, New Orleans.

COMPRESSED PEPTONIC PILLS.

Each contains 1 grain pure Pepsin, 1 grain pure Pancreatine Lacto-Phosphate of Lime and Lactic Acid, and therefore represents 10 grains each of the ordinary or Lacetarated Pepsin and Pancreatine as usually prescribed and dispensed. Physicians have found these Pills to give prompt relief in many forms of Dyspepsia and Indigestion, and of permanent benefit in all cases of enfeebled digestion, produced from want of proper secretion of gastric juice. They will appreciate the great advantage of the mode of preparation of these Pills in the absence of sugar or starch, which is present in all the ordinary Pepsin and Pancreatine Compounds, the increasad benefit to the Dyspeptic being due to a full and effective dose of the Pepsin and Pancreatine in soluble combination, and small bulk free from the really hurtful addition of sugar.

Dose—One Pill after eating or when suffering from Indigestion, Lump in the Throat or Flatulence. For children reduce the Pill to powder and give one-fourth to one-half.

JOHN WYETH & BRO.
Chemists, Philadelphia.

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COMPRESSED POWDERS, OR PILLS,

Made by simply compressing a dry powdered drug, without any excipient, moisture or other aid to cohesion. They are found to be porous, to disintegrate and dissolve much more readily than pills made by any other process, and on account of their somewhat flattened shape are more easily swallowed than any other form of pill. The Quinia Bi-Sulphate Compressed will act as promptly as a solution of ordinary Quinine.

COMPRESSED POWDERS, OR PILLS.

Complete lists, with formulæ mailed upon application.

ACID ARSENICI, 1-20 grs.
" SAL., 5 grs.
ACONITIÆ, 1-60 grs.
ALOES and MASTICH, U. S. P.
APERIENT. See list.
BISMUTH SUB. NIT., 5 grs.
CALOMEL, 2 grs.
" and IPECAC, Co.
CATH. Co., U. S. P.
" Imp.
" Veg.
CINCHONA SUL., 2 grs.
CINCHONIDIÆ SUL., 2 grs.
COLOCYNTH. Co. U. S. P.
DIGITALIS Co. See list.
FERRI SUL. EX. Co. See list.
" and QUIN. CIT., 2 grs.
" " and STRYCH., 1-60th.
HOOPERS.
HYDRARG, 3 grains.
IODOFORM and IRON, 1 gr. each,
IPECAC and OPII, 5 grs. pulv. dose.
MORPH. SUL., ⅛ gr.
" " ¼ gr.
NEURALGIC.
OPII, 1 gr.
" and CAMPH. See list.
OPII and PLUMBI ACET. See list.
PHOSPHORUS, 1-60 gr.
" 1-100 gr.
PODOPHYLLIN, ¼ gr.
" ½ gr.
POTASS BI-CARB., 8 grs.
" BROM., 5 grs.
" IODID, 5 grs.
PRANDIO.
QUINIA BI. SUL., 1 gr.
QUIN. BI. SUL., 3 grs.
" " 2 grs.
" " 5 grs.
" and STRYCH.
" SUL., 1 gr.
" " 2 grs.
" " 3 grs.
RHEI, U. S. P.
" Co., U. S. P.
SANTONIN, 1 gr.
" and PODO. See list.
SODA MINT. See list.
" BUCARB., 8 grs.
STRYCHNIÆ, 1-60,
" Co. See list.
SYPHILITIC. See list.
MUR. AMMON., 3 grs.

All of the Compressed Medicines on the above list are now on hand for dispensing by ALEX. K. FINLAY and other apothecaries in New Orleans. They are supplied at wholesale by G. R. FINLAY & Co., E. J. HART & Co., I. L. LYONS, FREDERICKSON & HARTE. Samples furnished free to physicians by mail, on application to

JOHN WYETH & BRO.,
1412 *Walnut Street, Philadelphia.*

BEEF, IRON and WINE.

Extract of Beef, Citrate of Iron and Sherry Wine.

In this preparation are combined the stimulant properties of WINE and the nutriment of BEEF with the tonic powers of IRON, the effect of which on the blood is so justly valued.

The peculiar feature of this combination is that it

COMBINES NUTRIMENT WITH STIMULUS.

In the majority of cases, along with failure of strength, and indeed as one cause of that failure, there is an inability to digest nourishing food. Hence it is very desirable to furnish nourishment in a form acceptable to the stomach, at the same time we excite this organ to do its duty. On the other hand, again, wine stimulus although needed, is ill borne if given by itself, producing headache, excitement and other symptoms which may be avoided by the addition of nutritious substance, such as the ESSENCE OF BEEF.

Prompt results will follow its use in cases of sudden exhaustion, arising either from acute or chronic diseases, and will prove a

VALUABLE RESTORATIVE FOR ALL CONVALESCENTS.

As a Nutritive Tonic it would be indicated in the treatment of impaired nutrition, impoverishment of the blood, and in all of the various forms of general debility. Each tablespoonful contains the Essence of one ounce of Beef, with two grains of Citrate of Iron, dissolved in Sherry Wine. With a view to making the article more palatable, a portion of the beef is in the first place partially roasted, as experience has shown that it is better borne by the stomach, and can be administered for a longer period when this is done.

ADULT DOSE—One tablespoonful between meals, and when suffering from fatigue or exhaustion.

DOSE FOR CHILDREN should be reduced according to the age.

JOHN WYETH & BRO., Chemists.
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COD LIVER OIL,

WITH

PHOSPHATE OF LIME.

We earnestly invite the attention of physicians to this article, which will be found to answer a most important purpose as a remedy in the large class of wasting diseases.

One of the principal features in all these affections is the impairment or perversion of nutrition, the too rapid tissue transformation, and the want of certain substances essential to the organism. Especially is this manifest in the typical forms, scrofula in children, pulmonary complaints in adults. In these disorders, Cod Liver Oil acts as a fuel, maintaining animal heat. By adding to it the Phosphate of Lime we supply not only a tonic to the nervous system, but an important ingredient in other tissues of the body. When there is an actual tuberculous deposit, this article promotes its most favorable result, cretification.

Physicians will readily understand that the real reason why very delicate persons can digest our Emulsion of Cod Liver Oil is that the oily particles are without chemical change broken up and incorporated with an agreeable solution, used as a vehicle in the process of manufacture. The molecular condition of the Oil is entirely changed; and it is in consequence more quickly and readily digested when taken.

Each ounce of the mixture contains sixteen grains of the Phosphate of Lime, so that the usual doses of Cod Liver Oil may be given, whatever may be the age of the patient.

Experience has proved that children and adults unable to take Cod Liver Oil as usually administered find no difficulty in taking and retaining this preparation.

Adult dose, a dessert-spoonful, to be increased to a table-spoonful. Children in proportion to age.

The bottle should be well shaken before giving each dose.

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410 East Twenty-Sixth Street, Opposite Bellevue Hospital, New York City.

THIRTY-SEVENTH ANNUAL SESSION, 1877-78.

FACULTY OF MEDICINE.

REV. HOWARD CROSBY, D.D., LL. D., Chancellor of the University.

ALFRED C. POST, M.D., LL. D., Professor Emeritus of Clinical Surgery, President of the Faculty.

CHARLES INSLEE PARDEE, M.D., Professor of Diseases of the Ear; Dean of the Faculty.

MARTYN PAYNE, M.D., LL. D., Professor Emeritus of Materia Medica and Therapeutics.

JOHN C. DRAPER, M.D., LL. D., Professor of Chemistry,

ALFRED L. LOOMIS, M.D., Professor of Pathology and Practice of Medicine

WM. DARLING, A.M., M.D., F.R.C S. Professor of Anatomy.

WM. H. THOMSON, M.D., Professor of Materia Medica and Therapeutics.

J. W. S. ARNOLD, M.D., Professor of Physiology and Histology.

Dr. JOSEPH C. BRYANT, Lecturer on General, Descriptive and Surgical Anatomy.

J. WILLISTON WRIGHT, M.D., Professor of Obstetrics and Diseases of Women and Children.

FANEUIL D. WEISSE, M.D., Professor of Practical and Surgical Anatomy,

R. A. WITTHAUS, JR., M.D., Associate Professor of Chemistry and Physiology.

JOSEPH W. WINTER, M.D., Demonstrator of Anatomy.

POST GRADUATE FACULTY.

D. B. ST. JOHN ROOSA, M.D., Professor of Opthalmology and Otology.

WM. A. HAMMOND, M.D., Professor of Diseases of the Mind and Nervous System.

STEPHEN SMITH, M.D., Professor of Orthopœdic Surgery.

J. W. S. GOULEY, M.D., Professor of Diseases of the Genito-Urinary System.

MONTROSE A. PALEN, M.D., Professor of Gynæcology.

HENRY G. PIFFARD, M.D., Professor of Dermatology.

A. E. MACDONALD, M.D., Professor of Medical Jurisprudence.

JOSEPH W. HOWE, M.D., Clinical Professor of Surgery.

THE COLLEGIATE YEAR is divided into three Sessions:—A Preliminary Session, a Regular Winter Session, and a Spring Session.

THE PRELIMINARY SESSION will commence September 19th, 1877, and will continue until the opening of the Regular Winter Session. It will be conducted on the plan of that Session.

THE REGULAR WINTER SESSION will commence on the Third of October, 1877, and end about the 1st of March, 1878.

The location of the new College edifice being immediately opposite the gate of Bellevue Hospital, and a few steps from the ferry to Charity Hospital, Blackwell's Island, the Students of the University Medical College are enabled to enjoy the advantages afforded by these Hospitals, with the least possible loss of time. The Professors of the practical Chairs are connected with the Hospitals, and the University Students are admitted to *all the Clinics* given therein, *free of charge.*

In addition to the daily Hospital Clinics, there are eight Clinics each week in the College Building. Five Didactic Lectures will be given daily in the College building, and Evening Recitations will be conducted by the Professors of Chemistry, Practice, Anatomy, Materia Medica, etc. Physiology, Surgery and Obstetrics, upon the subjects of their Lectures.

THE SPRING SESSION embraces a period of twelve weeks, beginning in the first week of March and ending the last week of May. The daily Clinics, Recitations and Special Practical Courses will be the same as in the Winter Session, and there will be Lectures on Special Subjects by the Members of the Post-Graduate Faculty.

THE DISSECTING ROOM is open throughout the entire Collegiate year; material is abundant, and it is furnished free of charge.

STUDENTS WHO HAVE STUDIED TWO YEARS may be admitted to examination in Chemistry, Anatomy and Physiology, and if successful, will be examined at the expiration of their full course of study, on Practice, Materia Medica and Therapeutics, Surgery and Obstetrics; but those who prefer it may have all their examinations at the close of their full term.

FEES.

For course of Lectures	$140 00
Matriculation	5 00
Demonstrator's fee, including material for dissection	10 00
Graduation Fee	30 00
Post-Graduate Certificate	30 00

For further particulars and circulars, address the Dean,

PROF. CHARLES INSLEE PARDEE, M.D.,
University Medical College, 410 East 26th Street, New York City.

BELLEVUE HOSPITAL MEDICAL COLLEGE,

CITY OF NEW YORK.

SESSIONS OF 1877-1878.

THE COLLEGIATE YEAR in this Institution embraces a preliminary Autumnal Term, the Regular Winter Session, and a Spring Session

THE PRELIMINARY AUTUMNAL TERM for 1877-1878 will open on Wednesday, September 19th, 1877, and continue until the opening of the Regular Session. During this term, instruction, consisting of didactic lectures on special subjects and daily clinical lectures, will be given, as heretofore, by the entire Faculty. Students expecting to attend the Regular Session are strongly recommended to attend the Preliminary Term, but attendance during the latter is not required. *During the Preliminary Term, clinical and didactic lectures will be given in precisely the same number and order as in the Regular Session.*

THE REGULAR SESSION will commence on Wednesday, October 3d, 1877, and end about the 1st of March, 1878.

FACULTY.

ISAAC E. TAYLOR, M. D.,

Emeritus Professor of Obstetrics and Diseases of Women and Children, and President of the Faculty

JAMES R. WOOD, M. D., LL. D.,
Emeritus Prof. of Surgery.

FORDYCE BARKER, M. D.,
Professor of Clinical Midwifery and Diseases of Women.

AUSTIN FLINT, M. D.,
Professor of the Principles and Practice of Medicine and Clinical Medicine.

W. H. VAN BUREN, M. D.,
Professor of Principles and Practice of Surgery, Diseases of Genito-Urinary System, and Clinical Surgery.

LEWIS A. SAYRE, M. D.,
Professor of Orthopedic Surgery and Clinical Surgery.

ALEXANDER B. MOTT, M. D.,
Professor of Clinical and Operative Surgery.

WILLIAM T. LUSK, M. D.,
Professor of Obstetrics and Diseases of Women and Children, and Clinical Midwifery.

EDMUND R. PEASLEE, M. D., LL. D.,
Professor of Gynæcology.

WILLIAM M. POLK, M. D.,
Professor of Materia Medica and Therapeutics, and Clinical Medicine.

AUSTIN FLINT, Jr., M. D.,
Professor of Physiology and Physiological Anatomy, and Secretary of the Faculty.

JOSEPH D. BRYANT, M.D.,
Professor of General, Descriptive, and Surgical Anatomy.

R. OGDEN DOREMUS, M. D., LL. D.,
Professor of Chemistry and Toxicology.

EDWARD G. JANEWAY, M. D.,
Professor of Pathological Anatomy and Histology, Diseases of the Nervous System, and Clinical Medicine.

PROFESSORS OF SPECIAL DEPARTMENTS, ETC.

HENRY D. NOYES, M. D.,
Professor of Ophthalmology and Otology.

JOHN P. GRAY, M.D., LL. D.,
Professor of Psychological Medicine and Medical Jurisprudence.

EDWARD L. KEYES, M. D.,
Professor of Dermatology, and Adjunct to the Chair of Principles of Surgery

EDWARD G. JANEWAY, M. D.,
Professor of Practical Anatomy. (Demonstrator of Anatomy.)

LEROY MILTON YALE, M.D.,
Lecturer Adjunct upon Orthopedic Surgery.

A. A. SMITH, M.D.,
Lecturer Adjunct upon Clinical Medicine.

A distinctive feature of the method of instruction in this college is the union of clinical and didactic teaching. All the lectures are given within the Hospital grounds. During the Regular Winter Session, in addition to four didactic lectures on every week-day, except Saturday, two or three hours are daily allotted to clinical instruction.

The Spring Session consists chiefly of Recitations from Text-books. This term continues from the first of March to the first of June. During this Session, daily recitations in all the departments are held by a corps of examiners appointed by the regular Faculty. Regular clinics are also given in the Hospital and in the College building.

FEES FOR THE REGULAR SESSION.

Fees for Tickets to all Lectures during the Preliminary and Regular Term, including Clinical Lectures	$140 00
Matriculation Fee	5 00
Demonstrator's Ticket (including material for dissection)	10 00
Graduation Fee	30 00

FEES FOR THE SPRING SESSION.

Matriculation (Ticket good for the following Winter)	$ 5 00
Recitations Clinics, and Lectures	35 00
Dissection (Ticket good for the following Winter)	10 00

Students who have attended two full Winter courses of lectures may be examined at the end of their second course upon Materia Medica, Physiology, Anatomy and Chemistry, and, if successful, they will be examined at the end of their third course upon Practice of Medicine, Surgery and Obstetrics only.

For the Annual Circular and Catalogue, giving regulations for graduation and other information, address Prof. AUSTIN FLINT, Jr., Secretary, Bellevue Hospital Medical College.

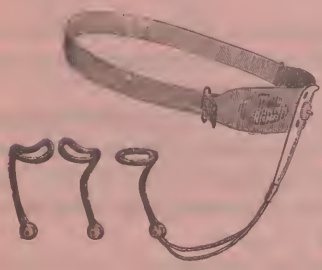
A CAREFUL PERUSAL WILL REPAY ANY SEEKER AFTER TRUTH.

SHANNON'S
IMPROVED UTERINE SUPPORTER

For the Successful Treatment of Prolapsus, Retroversion and Anteversion.

We guarantee them the best in the market. We make Cups and Rings to fit the Spring and Elastic Supporters. Our cups are superior to all others, being so deep that the Cervix will not ride upon the bottom, as is the case with a *shallow* cup. Persons can have their choice at same price.

Endorsed and recommended by many of the most eminent Physicians of the Country.



CHICAGO, July 2, 1875.

This is to certify that I have made frequent use of the Pessary known as Shannon's Supporter, both in hospital and private practice, and I feel free to say that I regard it as the *very best* stem Pessary in use. By means of its perfect adaptation to the different forms of uterine displacements, and the non-interference with the natural mobility of the organ secured by the reversible joint of the stem with the spring, it has the *widest possible* range of utility.

A. REEVES JACKSON,
Professor of Obstetrics and Diseases of Women and Children, Rush Medical College, Chicago.

I fully concur with the above. A. E. SMALL,
President and Emeritus Professor of Theory and Practice of Medicine, Hahnemann Medical College, Chicago.

PESSARIES.

The idea of supporting the prolapsed womb by means of substances introduced into the vagina, has an antiquity of many centuries, and pessaries, the name applied to these artificial supports, have been formed of almost every conceivable material, and in as great variety of shapes. They have been praised in the most extravagant terms by one set of practitioners, and as extravagantly condemned by others—while the first regard them as of paramount importance in the treatment of almost every case of displacement, the others deny their necessity in any.

While it may not be possible to reconcile views and opinions so diametrically opposed as these are, it does not seem a difficult task to assign some of the causes of their discrepancy. The great mass of medical practitioners who attempt at all to treat displacements of the womb, *habitually* use pessaries. Experience has shown them that unless they do use them they cannot do more than alleviate the sufferings of any of this class of patients, and in a large majority of them they are unable to do even this. Any one who would attempt to fit a pessary, should have some correct ideas of mechanics. So far as the mere fitting of the instrument is concerned, the treatment is wholly a mechanical one, and unless it be properly fitted and adapted to the requirements of each particular case, it will be no more likely to result in the comfort of the patient than would a badly-fitting shoe. The vagina is an organ that differs as much in size and shape in different women as does any feature of the face—or any other part of the body—hence it is as unreasonable to suppose that one size and pattern of pessary should fit every patient, as that one size and pattern of shoe should fit every foot, or one size of hat should fit every head.

Many of the distressing symptoms accompanying prolapsus of the womb, arise from the pressure of the displaced organ against the neighboring parts and the consequent interference with their functions.

The effects of such pressure are precisely the same, whether it be made by the womb or by an instrument placed in the vagina; and yet how many pessaries there are that do exactly this thing!

All the vast array of disks, globes, sponges, balls and inflating pessaries act in this manner.

Quite as improper and injurious as the class of pessaries just named, are those which support the womb by direct pressure against the cervix.

This portion of the womb is naturally merely suspended in the vagina, and in the normal condition of the parts, does not even press against the soft walls of the latter organ; and it is well known how soon it becomes the seat of congestion and ulceration, from injury during coition.

A knowledge of these facts prepares us to understand the evils that result from the use of pessaries whose mode of action is to sustain the womb by receiving the cervix into SHALLOW cups of unyielding substances, as hard rubber or metal.

In all our endeavors to cure diseases, defects, or disorders of any kind, effecting the human organism, we should imitate, so far as this may be possible, Nature's own plan for doing the same thing. In the disorder under consideration this is an especially important principle to keep in view, and the neglect of it may be regarded as the key to many of the failures that have resulted from the use of pessaries.

The womb is prevented from descending in the pelvis, chiefly and primarily by the vagina. This latter organ, at its upper extremity, surrounds the cervix uteri, to which it is firmly attached, and the womb is maintained in position by the tonicity of the vaginal walls—not on one side only, but on every side. This fact should be a guide to our practice when we come to treat prolapsus.

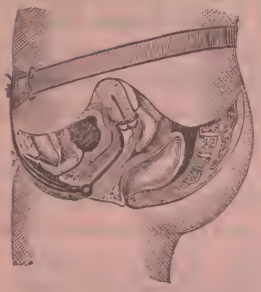
All this ring of vagina which surrounds the cervix, should be carried up to its normal place, and this action necessarily results in the drawing up of the uterus. The anterior and lateral walls of the vagina should be supported and sustained, as well as the posterior, and then the uterus is carried naturally into position, and maintained there while the weight of the organ is equally distributed upon the whole circumference of the vaginal ring. Pushing the prolapsed organ upwards by direct pressure against the cervix, is a most unscientific and injurious method.

As already stated, this structure is not adapted to endure continuous pressure, and when subjected to it, the result has been in many instances to cause ulceration, inflammation, induration of the tissues, and not unfrequently, flexions.

Therefore, a pessary, to be fully useful, and at the same time to produce a minimum degree of discomfort, should possess the following qualities, namely: 1. It should keep the uterus out of the vaginal canal. 2. It should produce no pressure against the cervix, or parts unaccustomed to pressure. 3. It should not distend the vagina. 4. It should be adaptable to every size and shape of the vagina. 5. It should be capable of removal and replacement by the person wearing it. 6. It should sustain the womb in the same manner as the organ is sustained by the normal vagina. 7. It should be composed of a material which will not become changed by contact with the uterine and vaginal discharges.

We have now enumerated the requisites of a perfect pessary, and have briefly considered the reasons why we regard them such. Having done so, we can truthfully add, that although tolerably familiar with the subject, we are not acquainted with any pessary that meets all these indications, except the one we have now to introduce to the profession

SHANNON'S SELF-ADJUSTING PESSARY.



A side-view of the Female Pelvis, showing the application of *Shannon's Self-Adjusting Pessary.*

Restoring the prolapsed vagina, and holding the uterus in its natural position without producing pressure against the cervix or any of the neighboring organs.

The accompanying cut is copied from Prof. Byford's Text-Book of Obstetrics, and is not changed to suit our instrument, as is the case with all similar appliances of which we have any knowledge, but the instrument is made to exactly fit the parts.

The vagina is not, in the ordinary condition of the parts, an open tube, inviting, so to speak, the womb to drop into it. On the contrary, its anterior and posterior walls, except when pressed apart, lie in close contact with each other, forming, in effect, a solid column. Hence it follows that any pessary which does not restore the vagina to its proper length, and allow its walls to approximate, must fail in its purpose; and further, that if the vagina be restored, the womb will necessarily resume its proper position also.

A DESCRIPTION OF OUR INSTRUMENT.

The ring and stem, or vaginal portion, is composed of pure black vulcanite rubber, with a very high degree of polish, and may be changed to any desired shape by simply applying heat.

The wire-supporting frame, joint and screw, is made of *solid coin silver.* Let me here add that I was deceived in the manufacture of a few instruments of the old style, and upon actual test, proved to be base metal, plated, but they are all now made under my immediate supervision, stamped *coin*, and warranted to be such.

The spring, or point of attachment to the belt, is so pliable as to permit the organ to rise and fall with each respiration, or during the act of coughing, sneezing, etc. By this contrivance we obtain all the benefits claimed for the lever pessary without incurring the evils of vaginal pressure.

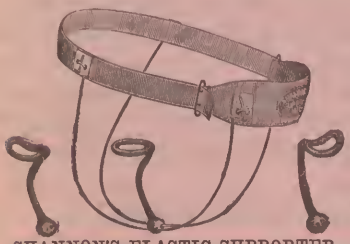
The attachment of the stem to the supporting frame, is made by means of a perfectly smooth close-fitting joint, and is, by a recent improvement, so arranged that the ring and stem cannot press back against the posterior wall of the vagina, but permits the ring to advance to accommodate the filling up of the rectum; this is a very important improvement, and removes the only objection ever offered to the instrument. The belt is composed of a neat, elastic band, attached by means of two buckles to a handsome kid pad, three inches wide by six inches long, and is designed only as a point of support for the instrument.

Here let me denounce what I consider the most unscientific, anti-surgical, and unphysiological of all the inventions man ever yet devised. It is the so-called "abdominal supporters." These belts and pads, however made or applied, absolutely offer no support whatever to the womb. Any one will feel satisfied of the truth of this statement by introducing the finger, and touching the mouth of the womb, which will be easily found and recognized as a roundish, hard, resisting body, with a slit or slight depression in the center. Three inches, and in most cases even somewhat less than this, upward

and forward from this point, is the fundus, or extreme end. Now, notice where the pad or support rests, and you will be satisfied that it is entirely out of the question for any such contrivance to exert an *upward* influence upon the womb: therefore, instead of having an upward tendency to relieve the pressure, it must inevitably have the effect of jamming and forcing the abdominal contents down still more upon the womb, and in that way increase the difficulty; besides this, it produces unnatural heat and retards circulation.

Our instrument is equally efficient in the treatment of Retroversion, Anteversion and simple Prolapsus. The fact that we make six different sized rings attached to many lengths of stems, every case which presents itself can be fitted by the exercise of a little judgment.

An inspection of the instrument is necessary to a full appreciation of its merits.



SHANNON'S ELASTIC SUPPORTER.

This cut represents Shannon's Elastic Supporter, being the same belt and rings as the improved one, but held in position by two soft-rubber cords, and is, therefore, the best *cheap* instrument manufactured.

We are anxious that Physicians should see and try these instruments, and be entirely satisfied with them—therefore we make this liberal proposition: On receipt of price, we will forward one with the privilege of examining it, and if not as represented, it may be returned, and the money will be cheerfully refunded; or, if retained, and upon actual trial the ring does not prove the right size, or stem the proper length, we will exchange without additional charge until the case is suited. We always exchange rings not suited, without reference to where they may have been purchased. This exchange can be made by mail, or we will send by express, C. O. D., upon the same terms. Full directions accompany each instrument.

Retail Price of Self-Adjusting Pessary, - - $12 00
Retail Price of Elastic Pessary, - - - 6 00
A Liberal discount to the Trade and Profession.

Money may be remitted by P. O. order, draft, registered letter, or will send by express, C. O. D. Instruments sent by mail at our risk.

We issue a valuable 32-page pamphlet, entitled, "THE DISPLACEMENTS OF THE UTERUS; THEIR CAUSES, NATURE, AND AN ACCOUNT OF A NEW PRINCIPLE OF TREATMENT," sent free on application.

Respectfully Yours,

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182 State Street, CHICAGO.

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To the Medical Profession.

LACTOPEPTINE,

The most important remedial agent ever presented to the medical profession for Indigestion, Dyspepsia, and all Diseases arising from imperfect nutrition, containing the five active agents of digestion, viz: Pepsin, Pancreatine, Diastase or Veg. Ptyalin, Lactic and Hydrochloric Acids, in combination with Sugar of Milk.

FORMULA OF LACTOPEPTINE.

Sugar of Milk,	40 ounces.	Veg. Ptyalin or Diastase,	4 drachm.
Pepsin,	8 "	Lactic Acid,	5 fl. "
Pancreatine,	6 "	Hydrochloric Acid,	5 fl. "

Powder and Mix.

LACTOPEPTINE owes its great success solely to the Medical Profession, and is sold almost entirely by Physicians' Prescriptions. Its almost universal adoption by the profession, is the strongest guarantee we can give that its therapeutic value has been most thoroughly established.

The undersigned, having tested Reed & Carnrick's preparation of Pepsin, Pancreatine, Diastase, Lactic Acid, and Hydrochloric Acid, made according to published formula, and called LACTOPEPTINE, find that in those diseases of the stomach where the above remedies are indicated, it has proven itself a desirable, useful and well-adapted addition to the usual pharmacentical preparations, and therefore recommend it to the profession.

NEW YORK, April 6th, 1875.

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PRICE LIST.

LACTOPEPTINE (Powder in oz. Bottles' per oz	$ 1 00
" (Powder in oz. Bottles) per doz	10 00
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Elixir Lactopeptine, per doz	15 00
" Lactopeptine and Bismuth, per doz	15 00
" Lactopeptine, Strychnia and Bismuth, per doz	15 00
" Calisaya Bark and Iron, with Lactopeptine, per doz	15 00
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Liquid Lactopeptine, per doz	15 00
Syrup Lactopeptine Compound, per doz	15 00

All correspondence and communications must be addressed to the

New York Pharmacal Association,

[Who have purchased all the rights in the article of Messrs. Reed and Carnrick.]

P. O. Box 1574. 83 John Street, NEW YORK.

Trommers' Extract of Malt.

The rapidly increasing demand for our Improved Extract of Malt, during the four years that it has been manufactured and offered to the medical profession in America, justifies the belief that in its production here we are meeting a generally felt want.

Long experience in manufacturing Malt Extract has enabled us to completely overcome the many difficulties attending its manufacture in large quantity; and we positively assure the profession that our Extract of Malt is not only perfectly pure and reliable, but that it will keep for years, in any climate, without fermenting or molding, and that its flavor actually improves by age. Our Extract is guaranteed to equal, in every respect, the best German make, while, by avoiding the expense of importation, it is afforded at less than half the price of the foreign article.

The Malt from which it is made, is obtained by carefully melting the very best quality of selected Toronto Canada Barley. The Extract is prepared by an *improved process*, which prevents injury to its properties or flavor by excess of heat. IT REPRESENTS THE SOLUBLE CONSTITUENTS OF MALT AND HOPS, viz: Malt, sugar, dextrine, diastase, resin and bitter of hops, phosphates of lime and magnesia, and alkaline salts.

Attention is invited to the following analysis of this Extract, as given by S. H. Douglas, Professor of Chemistry, University of Michigan, Ann Arbor.

TROMMER EXTRACT OF MALT CO.:—I enclose herewith my analysis of your Extract of Malt:

Malt Sugar 46.1; Dextrine, Hop-bitter, Extractive Matter, 23.6; Albuminous Matter [Diastase,] 2.469; Ash—Phosphates, 1.712. Alkalies .377; Water, 25.7. Total, 99.958.

In comparing the above analysis with that of the Extract of Malt of the German Pharmacopœa, as given by Hager, that has been so generally received by the profession, I find it to substantially agree with that article.

Yours truly, SILAS H. DOUGLAS,
Prof. of Analytical and Applied Chemistry.

This invaluable preparation is highly recommended by the medical profession, as a most effective therapeutic agent, for the restoration of delicate and exhausted constitutions. It is very nutritious, being rich in both muscle and fat producing materials.

The very large proportion of *Diastase* renders it most effective in those forms of disease originating in *imperfect digestion of the starchy elements* of food.

A single dose of the Improved Trommer's Extract of Malt, contains a larger quantity of the active properties of Malt, than a pint of the best ale or porter; and not having undergone fermentation, is absolutely free from alcohol and carbonic acid.

The dose for adults is from a dessert to a tablespoonful three times daily. It is best taken after meals, pure, or mixed with a glass of milk, or in water, wine, or any kind of spirituous liquor. Each bottle contains **1½ Lbs.** of the Extract.

Our preparations of Malt are for sale by druggists generally throughout the United States and Canadas, at the following prices:

Extract of Malt, *with Hops, plain,*	$1 00
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" " " " *Cod Liver Oil,*	1 00
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" " " " *Cod Liver Oil and Phosphorus,*	1 00
" " " " *Hypophosphites,*	1 50
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" " " " *Alteratives,*	1 50
" " " " *Citrate of Iron and Quinia,*	1 50
" " " " *Pepsin,*	1 50

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THE NEW ORLEANS MEDICAL AND SURGICAL JOURNAL.

Edited by S. M. BEMISS, M. D.

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NEW ORLEANS

SEYMOUR & STEVENS, Proprietors and Publishers, 96 & 98 Common Street,

1877.

COLLEGE OF PHYSICIANS AND SURGEONS,

MEDICAL DEPARTMENT OF COLUMBIA COLLEGE,

Corner 23d Street and 4th Avenue, New York City.

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JOHN C. DALTON, M.D.,
Professor of Physiology and Hygiene.

SAMUEL ST. JOHN, M.D.,
Prof. of Chemistry and Medical Jurisprudence.

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Professor of Surgery.

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Professor of Obstetrics and the Diseases of Women and Children.

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Emeritus Professor of Clinical Medicine.

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Adjunct Professor of Obstetrics and the Diseases of Women and Children.

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CHARLES F. CHANDLER, Ph. D.,
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H. KNAPP, M.D.,
Lecturer on Diseases of the Eye and Ear.

T. A. McBRIDE, M.D.,
Lecturer on Symptomatology.

The Collegiate Year embraces a Special Snring and a regular Winter Session, attendance at the latter only being required for the graduating course. The Spring Session begins near the middle of March, and continues till June 1. The Regular Winter Session for 1877-78 begins Monday, October 1, and continues till March, when the College Commencement is held.

Tuition is by the following methods: I. Didactic Lectures with Demonstrations. During the Winter Session, from five to six lectures are given daily by the Faculty on the seven general branches of medical science. Attendance obligatory. Fees, $20 for the course on each branch, or $140 for the entire curriculum. During the Spring Session, two lectures are given daily by the Faculty of the Spring Session. Fees, each branch, $5, or $30 for the whole. II. Clinical Teaching. This important subject receives the fullest attention. Ten clinics, covering all departments of Medicine and Surgery, are held weekly, throughout the entire year in the College Building. In addition, the Faculty, being strongly represented on the staffs of the larger City Hospitals and Dispensaries, (such as Bellevue, Charity, and Roosevelt Hospitals, the New York Eye and Ear Infirmary, etc.) give daily systematic clinical lectures in one or more of these Institutions, as a regular feature of the College curriculum. Attendance at clinics is optional, and without extra charge. III. RECITATIONS are held daily, throughout both sessions, by a corps of Examiners. Attendance optional. Fees, Winter Session, $40. Spring Session, $30. Collegiate Year, $60. IV. PERSONAL INSTRUCTION.—*Practical Anatomy* is taught from October to May, and every student is expected to dissect. Fee $10, good for a Collegiate Year. Cases of Obstetrics are furnished to advanced students, without charge. Personal Instruction in *Operative Surgery, Minor Surgery, Physical Diagnosis, Opthalmology, Otology*, and *Laryngoscopy* is also given by Special Instructors for moderate fees. Attendance optional

EXPENSES.—The necessary collegiate expenses are the yearly Matriculation Fee, ($5, good for a collegiate year), and the fees for the Lectures of the Winter Session ($20 for the course on each branch, or $140 for the entire curriculum.) A *Graduation Fee* of $30 is also charged. The graduating course requires three years' study, and attendance upon two courses of lectures on each of the seven branches of the winter curriculum. Remissions and reductions of lecture fees are made to graduates, theological students, and students who have already attended two full courses.

ALL FEES ARE PAYABLE IN ADVANCE. Board can be had from $6 to $9 a week, and the Clerk of the College will aid students in obtaining the same.

For the Annual Catalogue and Announcement, or for further information, address

EDWARD CURTIS, M.D.,
Secretary of the Faculty, College of Physicians and Surgeons,
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ALBERT B. MILES, M.D.,
Demonstrator of Anatomy.

The next annual course of instruction in this Department (now in the forty-fourth year of its existence) will commence on Monday, the 12th day of November, 1877, and terminate on Saturday the 9th day of March, 1878. Preliminary Lectures on Clinical Medicine and Surgery will be delivered in the amphitheater of the Charity Hospital, beginning on the 20th of October, without any charge to students.

The means of teaching now at the command of the Faculty are unsurpassed in the United States. Special attention is called to the opportunities presented for

CLINICAL INSTRUCTION.

The Act establishing the University of Louisiana gives the Professors of the Medical Department the use of the great Charity Hospital, as a school of practical instruction.

The Charity Hospital contains nearly 700 beds, and received, during the last year, nearly six thousand patients. Its advantages for professional study are unsurpassed by any similar institution in this country. The Medical, Surgical and Obstetrical Wards are visited by the respective Professors in charge daily, from eight to ten o'clock A. M., at which time all the Students are expected to attend, and familiarize themselves, *at the bedside of the patients*, with the diagnosis and treatment of all forms of injury and disease.

The regular lectures at the hospital, on Clinical Medicine by Professors Bemiss, Elliott and Joseph Jones, Surgery by Professors Richardson and Logan, Diseases of Women and Children by Professor Lewis, and Special Pathological Anatomy by Professor Chaille, will be delivered in the amphitheater on Monday, Wednesday, Thursday and Saturday, from 10 to 12 o'clock, A. M.

The Administrators of the Hospital elect, annually, *twelve resident Students*, who are maintained by the Institution. All vacancies filled by competitive examinations.

TERMS:

For the Tickets of all the Professors	$140 00
For the Ticket of Practical Anatomy	10 00
Matriculation Fee	5 00
Graduation Fee	30 00

Graduates of other recognized schools may attend all the Lectures upon payment of the Matriculation fee; but they will not be admitted as candidates for the Diploma of the University except upon the terms required of second course Students. All fees are payable in advance.

As the practical advantages here afforded for a thorough acquaintance with all the branches of medicine and surgery are *quite equal* to those possessed by the schools of New York and Philadelphia, the same fees are charged.

For further information, address

T. G. RICHARDSON, M.D., Dean.

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MEDICAL DEPARTMENT OF COLUMBIA COLLEGE,

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