may happen to be above the level of the sea, and thus to judge of one property by the variations observed in another.

Boiling Point and Composition.

The relations which the boiling points of fluids bear to their composition are less generally known. Pyroxilic spirit, alcohol, and the fousel oil of potato brandy, are three fluids, of which the respective boiling points differ greatly from each other. Pyroxilic spirit boils at 138.2° F.; alcohol at 172.4° F.; and fousel oil at 275° F. The comparison of these three boiling points shows that the boiling point of alcohol is by 34.2, ($138.2 + 34.2 = 172.4$;) and that of fousel oil by four times 34.2 degrees, higher than that of pyroxilic spirit, ($138.2 + 4 \times 34.2 = 275^{\circ}$.)

Upon oxidation under like circumstances, each of these three fluids yields an acid—viz., pyroxilic spirit yields formic acid; alcohol, acetic acid; and fousel oil, valerianic acid. Each of these three acids has again a distinct boiling point,—formic acid boils at 210.2° F.; acetic acid at 244.4° F., and valerianic acid at 347° F. A comparison of these three boiling points will at once show that they bear the same relative proportion to each other as the boiling points of the three fluids from which they were formed. The boiling point of acetic acid is 34.2, higher than that of formic acid; that of valerianic acid is four times 34.2 degrees, higher than that of formic acid. Now, if we compare the respective composition of these six bodies, (pyroxilic spirit, alcohol, fousel oil, and formic acid, acetic acid, valerianic acid,) we find that the composition of pyroxilic spirit is expressed by the formula, $C_2 H_4 O_2$; that of alcohol, by the formula, $C_4 H_6 O_2$; and that of fousel oil, by the formula, $C_{10} H_{12} O_2$.

Now let us substitute for the formula $C H$ (which means equal equivalents, by weight, of carbon and hydrogen) the letter R, and it will appear at once that the formula of alcohol may be expressed by that of pyroxilic spirit plus 2 R.

The formula of fousel oil may be expressed by that of pyroxilic spirit + 8 R.

The formula of formic acid is $C_2 H_2 O_4$; that of acetic acid, $C_4 H_4 O_4$; that of valerianic acid, $C_{10} H_{10} O_4$. Here it will be again readily observed, that the formula of acetic acid may be expressed by that of formic acid + 2 R, and the formula of valerianic acid by that of formic acid + 8 R. It follows from these data, that a rise of 34.2 degrees in the boiling point corresponds to the accession of every two equivalents of carbon and two equivalents of hydrogen, or, in other words, to that of every 2 R. That the relation between the composition and the boiling point is constant throughout this group of compounds, and that the knowledge of the boiling point of any of the compounds belonging to this group enables us to infer the composition of the compound, are facts capable of demonstration. The boiling point of formiate of oxide of methyle is 96.8° F.; that of formiate of oxide of ethyle is 131° F.; the difference between the two is 34.2. From this we should accordingly be able to conclude that the composition of the latter differs from that of the former by $C_2 H_2$, or, in other words, by 2 R; and this is indeed the case. The formula of formiate of oxide of methyle is $C_4 H_4 O_4$, that of the corresponding compound of ethyle is $C_6 H_6 O_4$; the latter contains, consequently, exactly $C_2 H_2$ more than the former. Thus, butyric acid boils at 312.8° F.; its boiling point is consequently exactly three times 34.2 degrees higher than that of formic acid. A comparison of the respective formulæ of the two acids shows that butyric acid may be regarded as formic acid + 6 R. Toluidine and aniline are two organic bases, of which the composition differs, inasmuch as the latter contains $C_2 H_2$ (or 2 R) more than the former. A comparison of the respective boiling points of these two substances shows that the boiling point of aniline is exactly by 34.2° F. higher than that of toluidine.

"There is scarcely any subject on which the generality of the world are more ignorant than on the merits of medical men, and as to what are the data on which the opinion of those merits should be formed. They are, therefore, not only open to the impositions of fraud; but, as the usual accompaniment of ignorance, they are peculiarly capricious, prejudiced, and unreasonable on the subject."—*Memoir of the late Dr. Hope.*

ST. BARTHOLOMEW'S HOSPITAL.

MEDICAL REPORTS FROM THIS HOSPITAL.

By E. L. ORMEROD, M.B. Cambridge,

MEMBER OF THE ROYAL COLLEGE OF PHYSICIANS; DEMONSTRATOR OF MORBID ANATOMY AT ST. BARTHOLOMEW'S HOSPITAL.

INFLAMMATION OF THE BRAIN TREATED BY PURGATIVES, MERCURY, AND LOCAL DEPLETION; CONVALESCENCE.

CASE 21.—William K., aged twenty-one, admitted March 3rd, 1846, John back ward, under Dr. Burrows. A tall, spare, ungainly-looking man, with an anxious expression, constantly making the movements of deglutition. Skin warm and dry; tongue thickly coated on the dorsum, moist; pulse 80, full; bowels confined; abdomen tolerant of pressure; has pain in the head and limbs of six days' duration.

History.—Married; healthy; a stationer; not habitually intemperate, but six days ago went out on a pleasure excursion, and drank rather freely. The same evening, he was taken with rigors and pains in the head and limbs. The rigors were not followed by perspiration—indeed, the skin has remained hot and dry throughout. He has had no return of rigor since; his chief complaint is of wakefulness, pain in his head, and incoherency. He has had leeches to the head, from the use of which he has found great relief, purgatives at the outset, and subsequently opiates. Ordered, chloride of mercury, two grains, with jalap, eight grains, immediately; liquor of acetate of ammonia, two drachms, out of camphor mixture, every six hours; and to apply a cold lotion to his head.

4th.—He slept but little; was not delirious during the night; skin warm; pulse 80, full; tongue still furred; bowels freely open; the evacuations liquid and bilious. He complains of great thirst, and pain in the occiput. Ordered to be cupped to six ounces on the back of the neck.

5th.—He had great relief from the cupping; slept well; pulse 80, soft; tongue moist, cleaner; he has no thirst, and but little pain in his head; bowels open twice. Ordered to continue the use of the saline mixture, to repeat the pills to-night, and to take a senna draught to-morrow morning.

6th.—He suffered much from pain in the head and thirst during the night, but is now easier; pulse 80, soft; tongue more thickly coated.

On the 8th, he had been restless and delirious during the previous night, and he had pain in the back of his head; his bowels, notwithstanding the free use of purgative medicine, were confined. Ordered to take liquor of acetate of ammonia, half an ounce, with sulphate of magnesia, one drachm, every six hours.

The next day the pain was relieved in some measure; tongue still thickly coated; pulse 84, soft; bowels confined.

12th.—Yesterday he again suffered from pain in the head. He is now restless; complains of the light and noises in the ward, and has much pain in his head, and thirst; pulse 100, soft; tongue with a thin yellow fur; bowels open twice. Ordered to have his head shaved, to be cupped to eight ounces on the temples, and to take chloride of mercury, two grains, every six hours.

The next day he was free from pain in the head, and expressed great relief from the cupping; but on the 14th, as the pain was again severe, the skin hot and dry, the pulse increased in frequency, though still feeble, bowels confined, and he had the same intolerance of light and sound as before, he was ordered to be cupped again to four ounces on the temples, and to continue the chloride of mercury.

15th.—The cupping was followed by free perspiration and great relief to the pain in his head; tongue cleaner, moist; pulse 100, small, quite soft; bowels open.

On the 16th, his gums first appeared to be touched by the mercury; but the affection was not so marked as to indicate the omission of the remedy till the 21st. His pulse during this time was about 94, and soft; tongue gradually cleaning; headach and aversion to light and sound still an occasional, but not a very urgent, subject of complaint. He was discharged April 9th, apparently restored to health, there having been nothing to remark in his condition, intermediately, from day to day, beyond slight occasional pains of various parts of his body.

Though neither in this nor in the following case was the diagnosis verified by dissection, yet it appeared of use to detail them on the present occasion, as cases of inflammation of the brain are not of common occurrence in St. Bartholomew's Hospital, and as while some of the cases narrated in a previous paper illustrated the morbid changes discoverable in the brain after death, the late period at which the patients were ad-

mitted did not allow of much observation of the symptoms of this disease during life.

The above is a very simple case, as far as such a term can be applied to disease of an organ so important and easily injured as the brain. The patient seemed never actually in danger, unless, perhaps, on March 12th; but how little might have placed his life in the greatest danger, will be best seen in an example of the same kind of disease in a more severe form, from the perusal of the following case:—

INFLAMMATION OF THE BRAIN, TREATED BY MERCURY, FATAL.

CASE 22.—Thomas F—, aged 19, admitted January 4th, 1846, John back ward, under Dr. Burrows; a strong-looking man, face pale, dusky-looking; tongue red, with prominent papillæ, a broad, clean, red streak running down the centre, with lateral strips of fur; teeth covered with sordes; gums spongy; pulse 112, full; skin warm and soft; bowels confined; abdomen soft, tolerant of pressure. He lies on his back drowsy and listless, and can hardly be roused.

History.—A labourer; had good health till one month ago, when he felt unwell, but not to such a degree as to lay him up, till a week ago, when he was unable to leave his bed for headach. Since then he has lost his appetite, had no sleep at night, and yesterday was delirious. Ordered, a warm bath, castor-oil, half an ounce, immediately; two pounds of beef daily, for beef-tea, and a saline draught in camphor-mixture every four hours.

Jan. 5th.—He had little sleep and was delirious all night; face flushed, eyes injected, with slight strabismus; tongue dry down the centre, laterally furred and moist; pulse 68, full and jerking, but quite soft; skin hot and dry; bowels open once; abdomen rather tender on pressure. Ordered, to have his head shaved, to be cupped to six ounces on the temples, and to apply cold lotion to his head; to take mercury with chalk, two grains and a half, every eight hours.

6th.—He slept quietly, perspiring freely till midnight, when he became noisy and restless. He now lies in an easy posture, his face vacant, with more evident strabismus; tongue moist, more uniformly furred; pulse 64, soft. He has had one bilious evacuation from the bowels, and passes his urine freely in the bed; he is deaf; when questioned appears confused, but answers pretty correctly. Ordered, a plaster of cantharides to the nape of the neck, to take chloride of mercury, two grains every six hours, and to omit the beef-tea at present.

7th.—He lay pretty quiet during the night, and the blister has risen well. He lies on his back, rolling his eyes vacantly, squinting; is generally sensible, but occasionally vociferates incoherently; his extremities are cool; pulse 60 to 80, irregular, with good power; tongue moist at edges and tip, dry and chapped on the dorsum; bowels once scantily open; abdomen very tender on pressure. Ordered, to apply a blister-plaster to the top of his head, to go on with chloride of mercury, two grains every four hours; to rub in mercurial ointment night and morning, and to take a senna draught immediately.

8th.—He lay quiet, and the blister rose well. He now lies on his side, will do as he is told, but talks somewhat incoherently. He breathes fully and easily, (24 in the minute.) Pulse 90, with more power; bowels open four times; the last evacuation slimy, with some blood; tongue moist, the fur extending over the edges; gums slightly ulcerated. Ordered to take two grains of chloride of mercury, and to rub in the mercurial ointment at night only.

9th.—He slept well, except for about an hour at midnight. He is drowsy, but can be roused. There is a copious discharge of saliva from his mouth. Tongue inclined to dry, with a blackish fur. Pulse 96, soft. Green liquid evacuations are passed under him in bed. Ordered to continue the pill at night, but to leave off rubbing-in the ointment.

10th.—He again slept quietly and well. He lies staring vacantly about him, with slight strabismus; his tongue is more thickly coated; his bowels are less freely open, the evacuations still green and slimy. Ordered, one drachm of the sulphate of magnesia thrice a day.

11th.—He is quiet, answers questions slowly, and very indistinctly. Bowels very scantily open; urine discharged freely; pulse 100, soft. Ordered a blistering plaster to be applied to the head.

12th.—The blister rose but little. During the first part of the night he was restless, but all the morning he has been lying on his right side with his head stretched back, quite insensible, and breathing through his mouth, which is quite dry. His face is shrunk; the right pupil contracted, the left dilated. Pulse 126; sharp, but quite without power. Extremities cold. He still retains the power of swallowing fluids.

Ordered, mustard cataplasms to the legs, a blistering plaster to the top of the head, and to take two grains and a half of the sesquicarbonate of ammonia every four hours.

In the evening he was generally warmer. Pulse 120 to 130, very irregular. His urine had to be drawn off with the catheter.

13th.—The crown of the head now presented a freely discharging surface. His pupils were motionless, and he remained in the same condition as on the previous evening. The vesicated surfaces were poulticed to encourage a discharge, but no difference appeared in his symptoms till four o'clock next morning, when his breathing became stertorous, and he died in about an hour.

No examination of his body was allowed.

Comparing these two cases together, there seems good reason why the last should have terminated fatally. They both came under observation nearly at the same period of the disease, the seventh and eighth days respectively since the severe symptoms had developed themselves; but, in one, these symptoms had supervened on apparent health, after a probably exciting cause; in the other, these symptoms had followed a period of indisposition of three weeks' duration. And here the want of an examination of the body after death is most seriously felt, to determine whether this indisposition was owing to the same cause, which, in a more active state, subsequently induced the symptoms with which he died, or independent of it—whether, in fact, he was destroyed by old and incurable disease, such as tubercle; or whether the disease was simple, albeit displaying itself in an ailing person; if that ailing was not significant of the commencement of the disease.

It is not worth while to offer a guess where there can be no certainty, in the absence of an examination, nor does the progress of the case require any comment, further than to remark on the difference of his condition on the morning and evening of Jan. 12th, that the note does not seem now fully to express the difference that there then appeared to be, and which gave hopes at the time that the termination of the case might be favourable. That it does not do so is perhaps the best explanation why those hopes were disappointed.

BRISTOL DISPENSARY.

ABSCESS OF THE LIVER, POINTING BETWEEN THE SIXTH AND SEVENTH RIBS.

Reported by W. SMITH, Esq., Surgeon,

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ANNE B—, aged forty-one, married, was admitted to the Bristol Dispensary, September 1st, 1846, and became a patient under the care of T. Martin, Esq., surgeon to that institution, from whom the history of the case has been obtained.

Symptoms on admission.—A dull continued pain, increased by deep inspiration, on the right side. It extended from the hypochondriac region upwards to the fifth or sixth rib, and from the sternum backwards to the costal angles. There was œdematous swelling, without defined margin, over the same extent, with tenderness on pressure, greatest between the sixth and eighth ribs, about one inch and a half external to the sternum. The whole of the right side of the thorax exhibited some dullness on percussion, which was peculiarly evident at the lower part. There was diminished respiratory murmur, with bronchial respiration on the affected side, and slightly puerile respiration on the opposite one. The heart's sounds were distinctly heard on the right side of the chest. The tongue is pale and flabby, coated at the back part. The pulse 80, small, weak, and irritable; countenance is muddy, and rather expressive of anxiety, with a heavy expression of the eye; coldness and slight œdema of the extremities; bowels very irregular; motions clay-coloured; urine high-coloured and scanty; no abdominal tenderness; short dry cough, and some dyspnoea. Her general position is semi-recumbent, but she is able to lie down in any way except on the right side. There are thirst, loss of appetite, and absence of sleep, with anæmia and emaciation.

Previous history.—She stated, (so far as Mr. Martin could collect, for she manifested much mental hebetude,) that about four months since she first felt the pain, which had since gradually increased, her health, previously good, failing in the same proportion. Shortly after this date, she applied at St. Peter's Hospital, and was there blistered, and, by her description, also slightly ptyalized; but from this and subse-