Memorial Museum in Exeter, Dr. Farrant, of St. Thomas, Dr. Harper, of Barnstable, Dr. Harvey, of Newton Abbot, Mr. Michelmores, Clerk to the Devon County Council, Dr. Slade-King, of Ilfracombe, and Dr. Young, of Okehampton, for the great help they have so very kindly given me.

Note (November 21st, 1900).—It may increase any usefulness which my paper possesses if I add a short note with regard to some of the objections raised in its discussion.

My friends, who have already helped me so much with information about their districts, have very kindly furnished me with their experience on these points. In brief, their statements amount to this:

1. In none of the four districts (St. Thomas, Newton Abbot, Okehampton, Barnstable) do any definite race differences exist. Mr. Baring-Gould has thought a distinct race could be traced in two parishes of Okehampton district, namely, North Lew and Germansweek; yet these parishes merely follow the rule which seems to me to obtain generally.

2. In none of the districts can special closeness of intermarriage in certain parishes be considered to exist.

3. In none can the character of the dwellings be considered to vary definitely from parish to parish.

4. In none can differences in phthisis mortality be attributed to differences of occupation, except that it seems that women suffer rather more than men, this being attributed probably to their more indoor life. In North Tawton parish (Okehampton district) there is a woollen manufactory where large numbers of men, women and children are employed, yet North Tawton has just about the mortality which one would have ventured to predict. Excluding shopkeepers, railway servants, and private residents, the great bulk of the population in these districts is agricultural. Miners do not exist in any of them, nor lacemakers, except a few women so employed in the east of St. Thomas district, where no special proclivity to phthisis has been traced amongst them in the period dealt with.—W.G.

JAUNDICE IN TYPHOID FEVER.

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JAUNDICE is generally considered a rare and grave complication of typhoid fever. Until quite recently I remember having seen only one case of the kind, and there the appearance of jaundice in the course of enteric fever was a mere coincidence. During last summer, however, I met with three cases, in two of which, at least, icterus must be considered as produced by the typhoid process. They are of special interest because the jaundice persisted throughout the whole course of the disease—a very unusual occurrence—and also because they both ended in recovery. Later on I shall add a few remarks on the frequency and the prognostic value of his complication.

CASE I.—A girl, aged 22, was admitted to the French Hospital on May 5th, suffering from jaundice. Two days previous to her admission she felt ill, and lost her appetite. This was followed by nausea and vomiting, and she then noticed that her skin had become very yellow. On admission I found the tongue densely furred, and the skin and conjunctivæ extremely yellow. The pulse was 100, and the temperature normal. I detected no change in the size of the liver, but pressure over its free margin was painful, and firm pressure over the gall bladder caused nausea. The rest of the abdomen was not unusually sensitive to pressure. There was little or no tympanites. No enlargement of the spleen was noticeable. The urine was passed freely, was dark in colour, with a characteristic greenish tinge, and responded to the ordinary tests for bile. There was no albumen. She was constipated; the stools were normal, and were certainly not pipeclay in colour. On the evening of the day of admission the temperature rose to 100° F. at 6 P.M. and on the third day after admission it was 103° F. at the same hour. The motions also became loose, and some spots were observed on the abdomen, but on account of the jaundiced coloration of the skin they were not of a rose colour. Two days afterwards another set of similar spots appeared. The evening temperature on the fourth day was 104.2° F., and this continued for four days, with a morning fall of 1½°. During the course of the disease there was still little or no tympanites, and the nervous disturbance was not severe, as the patient could always be roused with ease. The blood showed Widal's reaction. A gradual improvement in the temperature took place until the sixteenth day, when it again rose to 103.8° F., and the next morning fell to 100.2°. The improvement was then steady, but the temperature did not become normal until the thirty-second day after admission. The stools were more or less loose, and their colour was characteristic of

typhoid fever. As the temperature fell the jaundice gradually disappeared, but when she left the hospital on June 28th for the convalescent home at Brighton the conjunctivæ and skin were still slightly yellow. No bile could be detected in the urine after the temperature became normal. It should be mentioned that this girl lived in London and the disease was contracted there.

On admission I ordered 3 grs. of calomel and also nitromuriatic acid twice daily. The diet was milk, with the addition of two teaspoonfuls of plasmon to each pint of milk. When the typhoid symptoms declared themselves on the third day I replaced the former medicines by 15 minims of the liquor hydrargyri perchloridi twice or thrice daily until the temperature became normal. Stimulants were hardly required at all, and I cannot help thinking that the addition of plasmon to the diet may to a certain extent account for this. The food consisted of three pints of milk with plasmon during the twenty-four hours, and she was fed every three hours.

In this case the jaundice was present from the beginning of the disease, it gradually began to disappear when the temperature began to fall, but had not quite disappeared when, eight weeks after the onset of the disease, the patient was sent to a convalescent home.

CASE II.—A man, aged 30, was admitted on May 19th to the French Hospital complaining of acute pain on the right side in the neighbourhood of the cæcum, and of general tenderness over the abdomen. He lay on his back, with his limbs flexed, and his face wore an anxious expression. He said he had been quite well in Paris two days before he came to London; I am, however, doubtful about this statement. The next day after his arrival he had had severe vomiting a few hours after food, and this had continued more or less ever since. He had no diarrhoea. On examination I found the tongue large and flabby, and much coated. The pulse was 120, and intermittent, and the temperature 102° F. As he was a stout man, and very neurotic, the examination of the abdomen was difficult. There was, however, general tenderness over the whole of the abdominal parietes and acute pain around the region of the cæcum. There was also a considerable amount of tympanites. It was difficult to percuss out the lower margin of the liver, and I could detect no marked pain on pressure over the gall bladder. I could find no enlargements of the spleen. I ordered opium and bismuth and linseed-meal poultices, to be followed in the morning by a dose of castor oil. When I saw him next day the vomiting had ceased, the pain was less, his bowels had been freely moved, and the temperature had fallen to 101° F. He was lying quite flat in his bed, looked ill, and exclaimed several times, "Oh, docteur, je suis abattu!" The temperature rose that night to 102° F., and on the fourth day after admission to 102° F. at 6 P.M. The same day the conjunctivæ became yellow, and the skin had also a jaundiced aspect. As he came from the South of France, and the skin was naturally dark, the jaundiced coloration was never very marked. The urine was, however, very dark—almost the colour of London porter, and gave the characteristic reaction for bile. With the history of my previous case in my mind I made the diagnosis of typhoid fever, although at first I felt inclined to think it might be either appendicitis or ptomaine poisoning. An examination of the blood gave the Widal reaction. I then prescribed the liq. hydrarg. perchlor., and the usual diet of milk and plasmon. The stools were never pipeclay in colour. He was at first inclined to be constipated but afterwards diarrhoea came on, which was never excessive. The stools were typical of typhoid fever. There was no rash throughout. He had little or no delirium although he was a very neurotic subject. The temperature became normal on June 12th. The jaundice gradually disappeared as the temperature fell, and about June 16th the urine became normal in colour and failed to give the bile test. When he left the hospital on June 30th for the convalescent home, the jaundice had disappeared although the conjunctivæ were not quite white. The patient said "his eyes" were always a little yellow as he was a "bilious subject."

In this case the jaundice appeared on the fourth day after admission, apparently at the end of the first week of the disease, it again gradually disappeared as the temperature fell, and lasted nearly through the whole of the disease, about six weeks.

CASE III.—X. Y., aged 30, an officer in Her Majesty's South African Field Force, called upon me last July and gave me the following history of his illness, which he gave me leave to publish. I was much interested in it—as the details were most precise—especially when considered along with the two previous cases. He sailed for South Africa in August, 1899, and on the 30th was inoculated with the antityphoid serum. A few minutes after inoculation he fainted, his temperature rose, and he was ill for three days. On October 21st, 1899, he received a bullet wound, and was *hors de combat* until January 2nd, 1900. He then returned to duty, and almost immediately afterwards diarrhoea set in. He had frequent dark stools, but did not feel very ill, and was able to attend to his duties. In February, although exposed to great hardships, and continually soaked through, he felt very well. About March 4th he developed what was called dysenteric diarrhoea, and this lasted until April 13th. He had frequent stools, accompanied by abdominal pain and tenesmus. They contained blood and mucus. About the beginning of April he had also several slight shivering attacks. On the 13th of that month he got a severe chill, and the next day his eyes and skin were very yellow, and his liver became so painful that he could not lie on his right side or bear it touched. He gradually improved, and on April 30th was sent to the convalescent hospital, feeling considerably better. He returned to duty on May 8th, and on the 10th he felt feverish and very ill, and on the 13th was admitted to hospital suffering from enteric fever, with a temperature of 103° F. His highest temperature was 104.8° F. He does not know whether he had a rash or not, but he remembers being constipated during the whole of his illness, and requiring frequent enemata. The jaundice disappeared about the end of May. He was in hospital until June 28th, and from there he was carried to the hospital train, and then on board ship. He was able to go on deck on July 8th, and when I saw him in the end of July he

was quite well and the picture of health, and was going to shoot on August 12th.

In this case the jaundice preceded the onset of the enteric fever by several (apparently about four) weeks and lasted during the first three weeks of its course. Evidently it cannot be considered as a symptom of the typhoid process. The case is one of typhoid fever in a jaundiced patient. The jaundice was probably of catarrhal origin, although it might also have been due to some toxic process dependent on dysentery. As I did not see the patient during his illness I have to rely upon his narrative of the case. Obviously there is a possibility of a diagnostic error.

CASE IV.—Girl, aged 16, was seen by me in 1889 in consultation with the late Sir Andrew Clark. The diagnosis was typhoid fever, and all the symptoms, temperature, rash, diarrhoea, etc., were typical of the disease. About the middle of the second week she had nausea and vomiting, associated with irritation of the skin. She gradually became jaundiced, and the yellow discoloration was very marked. Some few days afterwards she passed a round worm, one-third of which was stained with bile pigment. After this the jaundice quickly disappeared. During the attack the urine was highly coloured, but I do not remember having examined the stools, and the nurse certainly did not draw my attention either to any alteration in their colour or odour. Her recovery was rapid and complete.

This is the case I referred to above. Of course the existence of a parasite in the intestine had no causal connection with the typhoid process, and the jaundice was in all probability due to obstruction of the bile duct by the parasite. This coincidence has been found on the *post-mortem* table by Hoelscher¹⁶ (ten times), and Horton-Smith¹⁷ (twice).

While most authors agree that jaundice is a rare complication of typhoid fever, exact figures as to its frequency are scanty. The following table gives some statistical details:

TABLE I.

Year of Publication.	Name of Author.	Number of Cases of Typhoid Fever.	Actual Frequency of Jaundice.	Frequency of Jaundice per cent.	Actual Frequency of Recoveries.	Actual Frequency of Deaths.
1864	Griesinger ¹	600	10	1.67	—	—
1874	Koller ²	1,039	6	0.58	5	1
?	Biermer ³	695	1	0.14	—	—
1880	Rösl ³	730	3	0.41	2	1
1886	Liebermeister ⁴	1,420	26	1.83	—	—
1889	Wiedemann ⁵	1,548	3	0.19	—	—
1892	Ivanoff ⁶	543	2	0.37	2	0
1892	Werner ⁷	50	4	7.14	4	0
1894	Bekis ⁸	204	2	0.98	2	0
1898	Rohlfleisch ⁹	81	6	7.41	3	3

The comparatively high percentage found by Werner and Rohlfleisch is probably due to the exceptional nature of their cases. Rohlfleisch's observations were made on people over 40 years of age, while Werner's patients were under chloroform treatment. It is therefore advisable to eliminate these figures. Even then the percentage is found to vacillate between such wide limits as 0.14 and 1.83.* But here it has to be remembered that in several of these statistics it remains doubtful whether due attention has been paid to the condition of the skin and conjunctivæ in every case and during the whole course of the disease. Liebermeister therefore cautiously says that in the 1,420 cases at the hospital in Bâle jaundice is "noted" twenty-six times, thus leaving it open that in a number of cases this symptom may have been present without being mentioned in the notes on the cases. Thus, perhaps, the low numbers given by Biermer and Wiedemann can be accounted for. On the whole, it may be said that the frequency of jaundice in typhoid fever is between 1 and 1½ per cent. This is in accordance with the estimations of Leube¹⁰ ("less than 2 per cent.") and Zülzer¹¹ ("at the utmost 1 to 2 per cent."). I can therefore not agree with Dr.

* It is not in typhoid fever alone that the statements of different authors with regard to the frequency of jaundice differ considerably. Something similar, if not to the same extent, may be seen even in cholelithiasis. Here the explanation may be found in the circumstance that some authors count only those cases of jaundice in which the discoloration of the skin and conjunctivæ is well pronounced, and in which the chemical tests give an unequivocal result, while others also include cases in which the yellow tint of the skin and the urine test are somewhat doubtful, and the conjunctivæ show only a faint discoloration (Naunyn, B., *Die Klinik der Cholelithiasis*, Leipzig, 1892, p. 70). With regard to typhoid fever, however, geographical differences, and differences in the character of the epidemics themselves must be carefully considered.

Hawkins²² when he says that "perforation of the gall bladder pathologically in typhoid is as rare as the occurrence clinically of jaundice with the same disease." Undoubtedly jaundice is much more frequently observed in the clinical picture of the disease than perforation of the gall bladder is found on the *post-mortem* table. Hoelscher¹⁶ in 2,000 *post-mortem* examinations of typhoid fever found only 1 case of perforation of the gall bladder; Horton-Smith¹⁷ none in 57 cases. Da Costa has been able to collect in the whole literature of the subject only 22 cases of perforation of the gall bladder.

The next table contains some data regarding the frequency with which jaundice is found on the *post-mortem* table in cases of enteric fever.

TABLE II.

Year of Publication.	Name of Author.	Number of Cases of Typhoid Fever.	Actual Frequency of Jaundice.	Frequency of Jaundice per cent.
1834	Chomel ¹²	42	2	4.76
1841	Louis ¹³	50	2	4.00
1869	Hofmann ¹⁴	250	10	4.00
1881	Petrina ¹⁵	194	1	0.52
1891	Hölscher ¹⁶	2,000	22	1.10
1900	Horton-Smith ¹⁷	300	2	0.66

It is obvious that these results, differing between wide limits, are not comparable without certain restrictions. Not only does the number of cases from which they are obtained vary, but the observations are made by different authors, in different countries, and at different times. I entirely agree with Dr. Horton-Smith¹⁸ when he says: "On what exactly these great variations depend it is difficult in all cases to say, but the figures obtained at any rate clearly show the danger of believing that foreign statistics may represent even approximately the condition of affairs at home." Besides even that most necessary precaution is frequently neglected, namely, to state in how many cases special attention has been given to a certain symptom. For instance, in the records of the *post-mortem* examinations upon which Hoelscher's paper is based jaundice is mentioned twenty-two times, but it is not stated in how many cases it has been looked for. This indispensable condition is fulfilled in Horton-Smith's careful statistics.

By making use of his results along with some other data, it is perhaps possible to form an approximate idea of the frequency with which jaundice leads to a fatal termination, that is, of its prognostic value. Murchison¹⁹ found in 2,505 cases of typhoid fever observed at the London Fever Hospital between 1848-1862 a mortality of 18.5 per cent.; in 18,612 cases, collected from London, Glasgow, Paris, Strassburg, and the French Provinces, and observed between 1840 and the beginning of the Sixties, he also found a mortality of 18.5 per cent. At this rate 300 deaths would correspond to 1,622 cases of typhoid fever; and, taking the frequency of jaundice in typhoid at about 1 per cent., we should have 2 fatal cases out of 16 cases of jaundice, that is, a mortality of 12.5 per cent. Evidently this conclusion is admissible only under the supposition that in fatal cases of jaundice this symptom does not, as a rule, disappear before death. But, as far as our clinical knowledge goes, this is the actual fact. In nearly all cases of jaundice which end fatally this symptom appears some time before and lasts until death; and even where its onset is in an earlier period of the disease, it persists during its course although it may decrease in intensity. Murchison's case, in which the discoloration of the skin disappeared completely before death, is quite exceptional.

It has also to be remarked that the mortality found by Murchison for his time is too high for the present generation, and that at the present day it certainly does not exceed 14 per cent., while it may be considerably less. Although this diminution may be partly due to better modes of treatment, to general hygienic conditions, to an attenuation of the epidemics, it is also undoubtedly partly due to the perfection of

modern diagnostic methods, by which means a large number of cases are recognised as typhoid fever which formerly would not have been classed under this title.²⁰ On the other hand, the percentage of jaundice in typhoid fever is perhaps a little more than 1 per cent. and nearer to $\frac{1}{2}$ per cent. Both these circumstances would lead one to suppose that the death-rate in typhoid jaundice is even less high than found by the foregoing computation.

It has to be granted that this estimation is only of very approximate value, but for want of better and more reliable information it may serve to give some idea with regard to the frequency of fatal jaundice. It also is in fair accordance with the average gained from the cases in Table I; of 23 cases of jaundice 5 ended fatally (21.74 per cent.) On the other hand, it differs considerably from the result obtained by Dr. Da Costa.²¹ He has placed in a table 52 cases collected from the literature of different countries. Of these 33 died (63.46 per cent.). But it is only natural that severe cases should be published much more frequently than benign ones, and that as the former presented the greatest scientific interest, they were therefore principally selected for publication, especially those cases in which a necropsy could be obtained. Besides, the 18 cases referred to above, and contained in Table I—in which recovery took place—were not included in Dr. Da Costa's table. For these reasons I think he greatly over-rates "the gravity of the symptom."

I may also mention that in the discussion which followed Dr. Francis Hawkins's paper on Jaundice and Perforation of the Gall Bladder in Typhoid Fever, Dr. John Harley²² said that "jaundice was rare in typhoid fever except as an early and transient symptom." Hoffmann²³ expresses the same view, also Lemoine.²⁴

I do not believe jaundice to be quite so rare and fatal a complication of typhoid fever as has been frequently presumed. Yet cases like my first two are quite exceptional. It is a most unusual occurrence for jaundice to appear at the onset of the disease, to gradually disappear with the falling off of the temperature, to last through the whole course of the disease, and yet to lead to a favourable termination. In fact, similar occurrences are so rare that they may lead—and have led—to the discrediting of the diagnosis of typhoid fever in such instances. With regard to my own cases this diagnosis seems to be established beyond doubt by Widal's reaction, taken together with the other symptoms. But it will be remembered that a number of years ago a German physician, A. Weil²⁵ described an epidemic of a "peculiar infectious disease," the most characteristic and constant feature of which was jaundice, the other symptoms being mostly those commonly met with in typhoid fever. While Weil himself was inclined to look upon it as a modified typhoid process, "typhus abdominalis abortivus biliosus," it has by other authors been raised to the dignity of a pathological entity under the name of "morbus Weillii." Fiedler,²⁶ who strongly advocates the latter view, lays particular stress on the time and the whole mode of appearance of the jaundice, which is "totally different" from what is to be observed in typhoid fever. A. Fränkel,²⁷ who is also unwilling to look upon these cases as varieties of typhoid fever, proposes the denomination of "febrile infectious jaundice." He very judiciously points out that, apart from jaundice, the only constant features of what is termed Weil's disease are increased temperature and the gastric-nervous troubles; that these characteristics are not sufficient to constitute a "disease of its own," and that proof as to the uniformity of the etiology of these cases is altogether missing. In these circumstances it is certainly not safe to force one diagnostic stamp upon cases which, although alike in certain symptoms, may be totally different in nature and causation. In 1897 Dr. Br. Leick²⁸ published three cases of "febrile infectious jaundice," in which Widal's test was not applied. In a fourth case of "Weil's disease," published by the same author²⁹ in 1898, this was done with a negative result. The patient, whose case closely resembles my first one, was admitted on the sixth day of his illness. The reaction was tried once only, and "during the first days of his stay in the hospital." It has to be remembered that a negative result during the first and even at the beginning of the second week proves nothing against the typhoid character of the disease; and in order to arrive at a definite conclusion, the agglutination test has to be repeated several times at short intervals

(see Curschmann,²⁰ p. 406). Dr. Leick's conclusion that the non-appearance of the agglutination in this one instance proves "Weil's disease" to be a disease *sui generis*, and quite distinct from typhoid fever, would seem therefore to be premature.

My observations anyhow show that in some cases of true typhoid fever jaundice may run a course "totally different from what is usually observed," and that this fact alone is not sufficient to construct a new clinical species. Thus some light may be thrown on at least some of these hitherto unexplained cases which the author, whose name has been attached to the "disease," regarded as varieties of typhoid. My cases differ from those described by him and others in two respects; the typhoid process was not abortive, and its "bilious" character was, as far as I can ascertain, not endemic. I am at least not aware of similar observations having been made at the same time in London. That two cases of the kind should come under my notice within the short space of a fortnight is evidently mere chance, a new instance of the old law of the "duality" of rare cases. This is best seen from the fact that in Case II the disease was contracted in France, while the first patient never left London.

With regard to the pathological condition or process which in such cases is productive of the jaundice, one is naturally thrown upon conjectures. But it seems almost certain that it is not of catarrhal nature. The coloration of the stools in both cases, the tenderness of the right hypochondrium on pressure in Case I, the nausea following from pressure over the region of the gall bladder, all point in a different direction. In the first edition (1857) of his classical treatise, Griesinger²⁸ expressed the opinion that jaundice in typhoid fever seemed always to be of catarrhal origin; in the second edition, however (1864), he²⁹ speaks of four different forms of icterus: (1) catarrhal, (2) pyæmic, (3) and (4) consequent upon disease of the liver. In an interesting paper on the hepatic complications of typhoid fever, Dr. Osler³⁰ (1897) also groups the cases of jaundice in four categories: (1) catarrhal, (2) toxic, (3) and (4) abscess of the liver and gall stone. There are certainly other changes of the liver besides abscess and gall stone which, although rarely, may lead to jaundice in typhoid fever, but whether they can all be regarded as toxic may be open to doubt. But clinical and pathological evidence alike seem to prove that catarrhal jaundice in typhoid fever, so far from being the rule, is an exceedingly rare occurrence. Whether the slight transitory forms which "appear and disappear early and seem to have no influence on the course of the disease" (Griesinger) are of catarrhal origin, as the author suggests, must, in the absence of all anatomical proof, remain uncertain; the character of the stools, which do not show any interference with the flow of bile, is not in favour of such an explanation. Only in the few cases where the stools have been clay-coloured (Murchison, Osler, Da Costa, Legry³¹) obstruction of the bile ducts can be considered as the cause of the jaundice, and even in some of those it is doubtful whether the obstruction is caused merely by catarrhal swelling or by cholangitis from other causes. Naunyn³⁰ has seen 3 cases of cholelithiasis during the first week of typhoid fever, or some accidental complication as that reported in my Case IV. This great rarity of catarrhal jaundice finds its natural explanation in the fact that the stomach and adjacent part of the intestine are scarcely ever implicated in the typhoid process.

While catarrhal jaundice can be excluded with almost absolute certainty in my first two cases, it is more difficult to come to a definite conclusion as to its causation. Since the observations of Gilbert and Girode,³¹ and Chiari's³² remarkable paper, the relations between the typhoid bacillus and cholelithiasis, between typhoid fever and affections of the gall bladder, have attracted great and general attention. This subject in its entirety has been treated with so much thoroughness by Naunyn³⁰ (1892), Osler²⁹ (1897), Da Costa²⁷ (1898), Curschmann²⁰ (1898),† and last, not least, by Horton-Smith (1900), that I have only to refer to their papers. Neither of my patients had been suffering from gall stone previous to

† I wish to draw attention to an interesting clinical fact observed by this author. Out of 42 patients with cholelithiasis 13—that is, 30.9 per cent.—had a previous history of typhoid fever, and not one of them had suffered from gall stone before the typhoid attack (p. 355).

the attack of typhoid, although one of them described himself as a "bilious" subject, nor is there anything in the course of the disease suggestive of cholelithiasis. "Some direct action of the specific micro-organisms on the liver or bile channels" (Da Costa) seems to me to be the most probable cause of the jaundice in these cases. Perhaps the description chosen by Mathieu³¹—"benign hepatic typhoid"—describes best the clinical aspect of these and similar cases.

It has often been remarked that every case of typhoid fever has to be looked upon as a "general infection with the typhoid bacillus."³² Chantemesse³³ seems to attribute all cases of jaundice, from the mildest to the acute yellow atrophy of the liver, to the presence of the typhoid bacillus in the portal system. But the precise seat and nature of the affection as well as the reasons why the infection occasionally attacks this particular organ at so early a stage, and why it all the same runs a mild course, while in others the implication of the liver quickly leads to a fatal termination, are questions which in the present state of our knowledge must remain unanswered. If I refrain from entering into speculations on these points, it is because I am mindful of the words which P. C. A. Louis has chosen as the motto and guide for his classical work on typhoid fever: "*Je sais que la vérité est dans les choses, et non dans mon esprit qui les juge, et que moins je mets du mien dans les jugements que j'en porte, plus je suis sûr d'approcher de la vérité.*"

REFERENCES.

- ¹ Nouveau Diction. de Méd. et de Chir. Pratiques., T. xxxvi, p. 706. Paris: 1884. Art.: Fièvre Typhoid (Georges Homolle) and Diction. Encyclop. des Sc. Méd., iv, 15, p. 432. Paris: 1889. Article: Ictère (Bernheim). ² Keller, H. Die Komplikationen des Ileotyphus, *Thesis*. Winterthur, 1874, p. 33. ³ Rösl, W., Die Komplikationen der Abdominaltyphus, *Thesis*. Zürich: 1880, p. 36. ⁴ Liebermeister, C., Typhus Abdominalis in *Ziemssen's Handb. der spec. Path. u. Ther.*, 3 Aufl., 1886, Bd. ii, Th. i, p. 205. ⁵ Wiedemann, F., Statistische Mittheilungen üb. d. Vorkommen des Abdominaltyphus, etc., *Thesis*. München: 1889. ⁶ Ivanoff, M., Der Typhus Abdominalis in den Jahren 1885-1890, *Thesis*. Zürich: 1892, p. 32. ⁷ Werner, P., Ueb. Chloroformbehdlg. des Darmtyphus, *Petersburg. med. Woch.*, 1892, p. 25. ⁸ Bekis, St., Statist. Mittheilungen üb. Typhus abdominalis, *Thesis*. Würzburg: 1894, p. 42. ⁹ Rohlfleisch, P., Ueber Verlauf des Typhus abdominalis bei alten Leuten, *Thesis*. Leipzig: 1898, p. 31. ¹⁰ Leube, W., v., *Spec. Diagnose der inner. Krankheiten*. Leipzig: 1893, Bd. ii, p. 409. ¹¹ Zülzer, W., Der Abdominaltyphus in *Eulenburg's Realencyclopädie*, 2 Aufl., 1885, Bd. i, p. 51. ¹² Chomel, A. F., *Leçons de Clinique Médicale faites à l'Hôtel Dieu de Paris*, etc. Bruxelles: 1834, p. 260. ¹³ Louis, P. C. A., *Recherches anat., pathol. et therap. sur la maladie connue sous le nom de fièvre typhoïde*, etc., 2nd edition. Paris: 1841, p. 310. ¹⁴ Hoffmann, C. E., *Untersuchungen üb. d. path.-anat. Veränderungen beim Abdominaltyphus*, Leipzig, Vogel, 1869, p. 220. ¹⁵ Petrina, D., Ueber lethalen Ikterus im Verlauf von Typhus abdominalis, *Prag. med. Woch.*, 1881, p. 403. ¹⁶ Hölscher, Aug., Die Complicationen bei 2,000 Fällen von lethalem Abdominaltyphus, *Thesis*, München, 1891, p. 5. ¹⁷ Horton-Smith, P., The Typhoid Bacillus and Typhoid Fever, *Lancet*, March 24th, 1900, p. 912. ¹⁸ *loc. cit.*, p. 913. ¹⁹ Murchison, Ch., *On the Continued Fevers of Great Britain*, London, 1884. ²⁰ Curschman, H., *Der Unterleibstypus*, Wien, 1898, p. 363. ²¹ Da Costa, T. M., On the Significance of Jaundice in Typhoid Fever, etc., *Amer. Journ. of the Med. Sc.*, New Series, vol. cxvi, p. 12. ²² Hawkins, F., On Jaundice in Typhoid Fever, *Proc. Med.-Chir. Soc.*, 1897, p. 50, 51. ²³ Hoffmann, *loc. cit.*, p. 220. ²⁴ Lemoine, George, *Dict. Encyclop. des Sc. Méd.*, Paris, 1885, iii, 18, p. 471, Art., Fièvre Typhoïde (George Lemoine). ²⁵ Weil, A., Ueber eine eigenthümliche etc., Infektionskrankheit, *Deut. Arch. f. kl. Med.*, 1886, Bd. xxxix. ²⁶ Fielder, A., Zur Weil'schen Krankheit, *Deut. Arch. f. kl. Med.*, 1888, Bd. xlii, p. 287. ²⁷ Weil'sche Krankheit in *Eulenburg's Realencyclopädie*, 1890, Bd. xxi, p. 261-267 (A. Fränkel). ²⁸ Griesinger, W., Infektionskrankheiten in *Virchow's Hand. der spec. Path. u. Ther.*, Bd. ii, Abth. ii, 1857, p. 150, 2te Aufl., 1864, p. 203. ²⁹ Osler, W., Hepatic Complications of Typhoid Fever, *Edin. Med. Journ.*, 1897, p. 424. ³⁰ Naunyn, B., *Klinik der Cholelithiasis*. Leipzig, Vogel, 1892, p. 55. ³¹ *Rev. de Méd.*, July, 1886. ³² Baumgarten, P. V., *Jahresbericht*, etc., 1895, p. 293. Anm. ³³ Charcot, Bouchard, et Brissaud, *Traité de Méd.*, 1891, Paris, 1891. T. I., p. 763. Art.: Fièvre Typhoïde (A. Chantemesse). ³⁴ Leick, Br., *Deut. med. Woch.*, 1897, Nos. 44, 45, 47. ³⁵ *Ibid.*, 1898, No. 46. ³⁶ Legry, Th., *Le Foie Sans la Fièvre Typhoïde*. *Thesis*, Paris, 1890, p. 210.

INFLUENZA AND THE NERVOUS SYSTEM.

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THE discussion on "Influenza as it affects the Nervous System," which took place at the meeting of the British Medical Association, and the detailed report of that discussion which appeared in the BRITISH MEDICAL JOURNAL on September 29th, have no doubt recalled to the minds of many physicians cases that have come within their own observation, and which at the time they may have only very hazily associated with the poison of influenza. It is to the cases of acute nervous disease—the first group of cases in Dr. Judson Bury's interest-

ing paper—that this remark will most forcibly apply, the more chronic nervous sequelæ of influenza having been longer and more generally recognised. As during last winter and early spring several cases of acute illness, which might possibly bear this interpretation, occurred in the wards of Sir William Gairdner in the Western Infirmary, Glasgow, at his suggestion I have gone carefully over the records, and now publish the main facts regarding them in the hope that they may be of interest, especially in view of the probable repetition of influenza in an epidemic form within the next few weeks, as has happened so regularly during recent years. During the period referred to, during which influenza was being met with in private practice, though not to such an extent last year as in several previous years, there were 5 cases of acute meningitis in Sir William's male ward. One of these was in all likelihood a case of tuberculous meningitis, the patient having been previously in the same ward with what was considered to be tuberculous pyelitis, but I give details of the other 4 cases. No similar case of illness occurred in the female ward in the same period.

CASE I.

G. P., aged 26, a coachbuilder, was admitted to the Western Infirmary in an unconscious and dying condition on December 26th, 1899.

History.—His illness began on December 20th with what appeared to be a feverish cold, but with severe headache. A doctor was called in on December 22nd, who regarded and treated the case as one of influenza. On the 23rd and 24th severe headache continued, apparently without vomiting, and the temperature was as high as 104°. On the 25th, about 2 P.M., he became unconscious with delirium and great restlessness, and, this increasing, he was sent to the infirmary on December 26th.

DAY OF MONTH	Dec ^r 26 th						27 th		
DAY OF DISEASE	MORN			EVE			MORN		
TIME	4	3	12	4	8	12	4	8	12
107									
106									
105									
104									
103									
102									
PULSE	100			100			140		
RESP.	32			28			22		

Condition on Admission.—He was quite unconscious and very restless, tossing the bedclothes aside and pulling away the icecap that was applied to his head. There was inequality of the pupils, the right being dilated and insensitive to light. Occasional and transient conjugate deviation of the eyes to the left side was noticed. There was continual twitching of the fingers of the left hand with aimless movements of that arm, while it was noticed some time after admission that there was some paresis of the right arm; otherwise there was no paralysis or convulsion.

Death.—He became rapidly worse, and the temperature, which was 102.8° on admission, rose steadily to 106.2° at the time of death, which took place seventeen hours after admission. The pulse increased with the temperature, and the respirations before death numbered 60 per minute. The patient's illness lasted exactly seven days. Unfortunately no necropsy was permitted.

CASE II.

R. H., aged 9, at school.

History.—This boy's previous health and family history were both good. His illness may be described shortly as characterised by cerebral symptoms with febrile temperatures without any apparent cause and of remarkably sudden onset, he having been in good health till the evening of the day previous to admission. On January 13th, 1900, the patient was quite well till evening, when he complained of pains, first in his legs and later in his arms and head. On the morning of the 14th he complained of faceache and that he had a bad headache, chiefly occipital. His mother administered a powder obtained from a chemist, containing hydrarg. cum creta and jalap. Soon after this his limbs were noticed to be rigid and his eyes staring, his neck, too, was arched back and stiff,