and there with the glistening, grayish bodies before described. I picked off one of these and gave it to the pathologist. He said it was too small for examination. I catheterized each ureter, and obtained what appeared to be normal urine from each. Examination by Dr. Jackson failed to reveal the presence of tubercle bacilli in either specimen. Although negative evidence in cases of urinary tuberculosis is not conclusive, I felt that the risk of carrying contagion up the ureter on my catheters was good reason for not obtaining further specimens.

Examination of the urine, March 2d, by Dr. Jackson, showed it to be cloudy, alkaline, 1.017, with a faint trace of albumin. In the sediment was a large amount of bladder and squamous epithelia, a few small round cells, much fresh blood, a considerable number of leucocytes, and a great number of bacteria and spores.

March 9th. She had an attack of pain and tenderness in the abdomen, associated with a cough. There was no temperature. Examination of the chest showed a few moist râles and high-pitched respiration in both backs, but nothing further.

March 14. I made another examination of the bladder with the No. 14 speculum, and confirmed my previous diagnosis. I curetted the reddened area with a Simon's spoon curette, and touched it with ten-per-cent. solution of nitrate of silver. There was moderate bleeding at the time.

Mrs. F. left the hospital March 20th.

Dr. Noyes writes, under date of April 7th: "At present she is in bed about all the time, because to be up causes more pain. The bladder is being irrigated twice daily through a soft-rubber catheter with four ounces of plain boiled and filtered water, and she is taking five grains of benzoic acid four to six times daily. I saw her yesterday, and she said she had very little pain except during and for a short time after urinating. She urinates only every three to four hours during the night, and every one and one-half to two hours during the day. She eats well, sleeps fairly well, and looks well."

The obstacles in the way of diagnosis have made the literature of primary tuberculosis of the female bladder somewhat meagre. Most of the work in the field of vesical tuberculosis has been done on the male. The text-books confine themselves to general statements. They give an unfavorable prognosis, though relatively more favorable than in secondary tuberculosis.

Pozzi says the duration of the disease may be estimated as from one to two years, but cases have been known in which it lasted from five to ten years without affecting the general health.

Fenwick said, in 1890, that most cases died in three years. But in 1892, in a paper on "The Mimicries of Primary Urinary Tuberculosis," published in the *British Medical Journal* for May 28th, he made the following statement: "After having watched the progress of over a hundred cases of urinary tuberculosis, I have come to the conclusion that when it attacks the lower division of the tract, the bladder, prostate and urethra, and is wisely treated, it exhibits as marked a tendency to obsolescence, or even cure, as the same disease when situated in the lungs." He also said, that, even when the disease was situated high up, the prognosis was better than was generally admitted.

I have not time to go into the question of infection — whether the bacillus is introduced from below, and the

process ascends from bladder to ureters and kidneys; or whether it is excreted by the glomeruli of the kidney and travels downward to the ureter and bladder. Both views are advocated by eminent authorities. Fenwick says primary vesical deposits first appear on the posterior wall of the bladder, as in my case.

The symptoms are frequent micturition, not relieved by rest, as is the case in stone; pain, especially at the end of micturition; and blood in the urine.

The object of treatment in chronic tubercular cystitis is to render the urine unirritating, and, if possible, germicidal by means of diet and drugs; and to remove mucus and uric acid deposits as sources of irritation by irrigation; also to destroy the bacilli by the direct application of caustics and germicidal agents; and to relieve pain. The system should be built up by cod liver oil and tonics. A milk diet is of great benefit as a diuretic, also plenty of water. The drug that has the best reputation is benzoic acid. Tyson recommends it in the form of five-grain pills; at least thirty grains in the course of the day. The potash salts, especially the citrate and acetate are of great use. In a general way we employ the alkalies to dissolve uric-acid deposits and to prevent them, and benzoic and boric acids to dissolve the phosphates. Other drugs that are well spoken of, are: buchu, triticum, repens, corn-silk, sandal-wood, copaiba, eucalyptus and resorcin. Salol has been found to prevent the growth of the staphylococcus in the bladder; but, by the statement of Rommalaere, the bacillus of tuberculosis resists it absolutely. It is certainly a valuable drug on empirical grounds alone.

As local treatment, the bladder should be irrigated at least once a day. Tyron says that tepid water, four to six ounces is as good as anything, and relieves pain better than other injections. He also advises very weak bichloride, 1-26,000.

Other remedies that stand well are borax, one drachm to a pint of warm water; common salt in the same amount; salicylate of soda, one drachm to the pint; alum enough to give an astringent taste; nitrate of silver twenty grains to the ounce; and creolin, one per cent. Guyon uses bichloride, 1-5,000 to 1-1,000, twenty to thirty drops at a time. Loumeau also uses strong bichloride.

Guyon and Reverdin have obtained excellent results by curetting and cauterizing the ulcerated area through an opening in the bladder made by supra-pubic cystotomy. With our new method the cystotomy will often prove unnecessary.

For the relief of pain morphine is to be avoided. Skene recommends bromide of potash, twenty grains every four hours. I have found it of great use in frequent and painful micturition in chronic cystitis.

METHOD OF STUDY FOR MEDICAL STUDENTS AND YOUNG MEDICAL GRADUATES.

BY E. R. AXTELL, M.D., DENVER, COL.,

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At this time students have been released from their winter's work, the spring courses have been completed and a few weeks of rest have supervened. Ambitious students are now taking up their books and wondering where to commence their work and how best to systematize it for the best results. Certain students are

studying in definite paths for definite ends; hospitals, prizes, positions of various kinds. The purpose of this article is to point out to those who have the summer before them how best to do the best work possible. It is unfortunate that a single medical student should be compelled to work hard at some laborious occupation during the summer months that lie between the sessions of his school. It is true that many of our brightest men have done so, but certainly those months can be well employed in study. There is no profession in which there is so much knowledge to be gained as in the medical profession, and it is well said that no one man can gain it all.

It is particularly true that all things can be bought except knowledge. The knowledge that we put away in our brain cells, we must work for and work for diligently.

For the best summer's work three things are essential, a good capable preceptor, a stated schedule of work and a method of study.

Let the student look about him for his preceptor. He should be a man, twenty-seven to thirty-five years of age, one who has done some writing for the medical press, a man who is engaged in college work or in some progressive investigation. A man who is yet young in the medical profession; one who is not too busy and who is ambitious. There are many of just such men in every city of any size and as I review my knowledge of the men in smaller places, that I have visited, I see them there. If the student cannot find such a man let him consult his old family physician. Do not accept the services, however, of the "old doctor" if he wants to be the preceptor. All honor to the noble old men of our profession! Never did there live such an array of grand old men, but the old doctor as we may all affectionately call him, is too busy a man, he has lost some of the fire of youthful ambition, he is not as pleased with the germ theory of disease as he might be, he is not the reader of the text-book that is now put into your hands.

Choose your teacher, ask him to tutor you, to assign your lessons, to hear you recite for one or two hours on Tuesday and Thursday of each week, and on every Saturday to have prepared for you a series of ten questions, which you are to answer, not orally but in writing. Arrange with him to mark these papers carefully and closely and to point out the deficiencies.

Make a reasonable money transaction of the arrangement. Ten dollars a month per student is a nominal fee.

Look about you and try to secure a fellow student. If you can arrange to have your rooms together, so much the better. A fellow compeer makes competition, stimulates work and sharpens the mental activity and keenness of you both.

Arrange for instruction in June, in July, for two weeks in August and for two weeks in September. Then to work! Do not try to accomplish too much, but do the little well. What you are working for during these holidays is not practical work but theory. Get theory first, then practice, time enough then to review your theory. As a practitioner of medicine you must have most of your knowledge available at all times. You cannot read, you have no time for reading when you stand before a case of uremic convulsions, before edema of the glottis, before a case of post-partum hemorrhage. You must act. How can you act when you have no knowledge of what should be done?

Thousands of young medical students make a mistake in allowing themselves to be entangled by practical work before they are ready for it. Many a physician has used the ready hands of a young medical student, when that student should have been at his books.

My old preceptor had me passing catheters and assisting at fractures and dislocations long before I should have done any work of that kind. Of what value was it to me to pass a catheter when my knowledge of the anatomy of the urinary tract and of the cause of the retention of the urine was so cloudy? Of what use was the reduction of a dislocation to me when the anatomy of the joint was so obscure? Every medical student should have some hospital training, he should study medicine with that expectation and he should certainly strive for that goal. Let a large bit of the practical work go until that time comes.

Summer is usually a poor time to attend clinics. The professor in attendance is not stimulated to work; but little is said of the cases as they are seen and the result is that the instruction to be derived is slight.

If your preceptor does not give you a time-table to guide you in your work, adopt this. Other students have followed it closely for months and months. What one man has done another man can do. You have agreed to work.

On every week day you are to rise at 6 A. M. One hour is given for the toilet and for breakfast. On Tuesdays, Thursdays and Saturdays, the days on which you recite, review your lesson from seven until seven forty-five. If you recite from eight to nine, walk to the place of recitation, and after it is over return to the room at once and study until twelve. From twelve to one get your noon-day meal, which under the schedule I am giving you should be the main meal of the day. From one to two in the afternoon you should go to bed. Do this in earnest. Throw off your clothes, don some cool sleeping gown and darken the room. Your alarm clock will tell you when it is two o'clock. From two to five you study. From five to six you exercise. Walk, ride, use some Indian clubs, box or wrestle. Some of the greatest tussles of my life occurred between my room-mate and myself, between the hour of five and six. Supper is taken from six to seven. Then a rest until seven thirty. Then study until ten. Go to bed at once. This advice I am free to say I did not always follow, but it is good advice.

On the days that you do not recite your study hours are unbroken.

Wednesday night is your night off. Go to the open-air theatre, visit your friends, take a car-ride or a drive. On Sunday you are not expected to study. Read the papers for the week, write letters and take recreation. You will find, however, that your Sundays of rest will not be more pleasant than your days of work. The acquirement of knowledge is a pleasant thing, and when once ambition whispers you become a willing slave. Quickly speed the days away. Your summer's vacation will have passed before you are aware. In August take two weeks from study. Go into the country, rest your eyes, get a little sunburned. Come back full of life. Study two weeks in September, and then commence your attendance at your medical school.

You will have gained much knowledge, and will be proud of your work. Your digestion will be perfect,

your health good, and you will have cause for congratulation.

It is the purpose of this paper to outline for you principally how best to study the practice of medicine. From the outline which I shall draw for you, and which, I may say, is not by any means entirely original, you can readily draw up suitable outlines for other studies, using your originality and knowledge in so doing. Purchase first a ream of good white or light yellow paper. The one sheet, practical legal, made by a few firms in the United States, I found answered best. This is but a matter of taste. Get some good, heavy-ruled writing-paper, sufficiently good, so that if you want to have it bound its appearance will be creditable.

Provide your room with two writing places: one that you can use sitting down, one that you can use standing up. Arrange to have good light at all hours of study. Then select your books, if you have not already done so. In my work I used Roberts's Practice of Medicine and Strümpell's Text-Book. I am prejudiced in favor of them. Certainly they are good enough. I would advise the student to follow Roberts and use Strümpell as a reference-book. Osler's Practice is a new candidate for favor, and it has good claims for high recognition.

Then, with an unabridged dictionary and a good medical dictionary, you are ready for your first lesson. It is a question with me if *the* student's medical dictionary has as yet made its appearance. We have wonderful dictionaries of medicine, Foster's and Billings's, the possession of which marks an epoch in the library of their purchaser. I am not now acquainted with the new dictionary of Professor Duane, but, from reviews which I have seen, I judge it to be the best dictionary now on the market for the medical student.

Having now your material, I ask you to memorize the following schedule in such manner that you can repeat it from any point, forward or backward. Get it impressed on your cerebral cells better than you have the alphabet, better than your notation. The use of this schedule is our "method of study."

1 DEFINITION.

2 SYNONYMS.

3 VARIETIES.

4 FREQUENCY.

5 MORBID ANATOMY.

(a) Macroscopic.

- 1 Number.
- 2 Size.
- 3 Shape.
- 4 Appearance.
- 5 Seat and Stage.
- 6 Secondary changes.
- 7 Changes in other organs by system.
- 8 Terminations.

(b) Microscopic, after above system.

6 ETIOLOGY.

(a) Predisposing causes:

- 1 Age.
- 2 Sex.
- 3 Climate.
- 4 Seasons.
- 5 Habits.
- 6 Idiosyncrasies.
- 7 Occupations.
- 8 Hygienic surroundings.
- 9 Other conditions, diseases, diathesis.
- 10 Heredity.
- 11 Idiopathic.

(b) Exciting causes:

- 1 Dietetic.
- 2 Mechanical.

- 3 Chemical.
- 4 Heat, cold or wet.
- 5 Specific.

7 SYMPTOMATOLOGY.

(a) Period of incubation.

(b) Prodromes.

(c) Method of onset.

(d) Symptoms:

- 1 Countenance and general aspect.
- 2 Nervous.
- 3 Respiratory.
- 4 Circulatory.
- 5 Temperature.
- 6 Digestive.
- 7 Genito-urinary.
- 8 Tegumentary.
- 9 Muscular and osseous.
- 10 General nutrition.
- 11 Physical examination:
 - (a) Inspection.
 - (b) Mensuration.
 - (c) Palpation.
 - (d) Percussion.
 - (e) Auscultation.
 - (f) Succussion.
 - (g) Analysis.

(e) Course.

(f) Duration.

(g) Termination.

(h) Complications and sequelæ.

8 PATHOLOGY.

(a) Exact definition.

(b) Pathological explanation of prominent symptoms and signs.

(c) Theories.

9 DIAGNOSIS.

(a) Diagnostic points. Use system given under symptomatology.

(b) Name all diseases to be diagnosticated from.

(c) Differences:

- 1 Causal.
- 2 Method of onset.
- 3 Symptoms by system.
- 4 Physical examination.
- 5 Duration and course.
- 6 Methods of termination.
- 7 Complications and sequelæ.
- 8 Prevalence of epidemics.

10 PROGNOSIS.

(a) Favorable or not—

- 1 As to life.
- 2 As to complete recovery.

(b) Favorable points.

(c) Unfavorable points.

(d) Average duration of the disease.

(e) Statistics of mortality.

11 TREATMENT.

(a) Expectant.

(b) Hygienic.

(c) Prophylactic.

(d) Specific.

(e) Symptomatic.

(f) Supportive.

(g) Surgical.

(h) Psychical.

With this scheme, take up each independent disease and write out a full treatise, or a skeleton of the subject under consideration. It can be made very complete if enough time can be given it; very short, yet clear, if it is necessary that it must be abridged. Personally, I think a lengthy analysis is better. With this scheme you cannot lose a single point if you use care. It makes you study, it makes you think. Writing makes a careful and attentive man. That is what is needed in our study of medicine.

Let us say that your preceptor has assigned you, for the next lesson, typhoid fever. You consult your books, and work out a definition and write it down. You next take up the synonyms and write them down under their proper heading. If your books speak of any varieties, record them. In like manner, the schedule is followed until the subject has been exhausted. You cannot write under every sub-heading,

but under the eleven main subdivisions there is always something to be said.

After the paper is finished review it, and not the book, for your next recitation. You will find that the writing of the text alone has given you a clear knowledge of the disease, and that but little study is needed for you to recall, not only the essential, but the minor points of morbid anatomy, etiology, symptomatology, diagnosis, prognosis and treatment.

One can readily understand the value of the system, for the knowledge is impressed in so many different ways: by study, by writing, by recitation.

Then, when the weekly examination is given, you find yourself provided with a system which brings the work all back to you. You have simply to take your knowledge from each of the pegs with which the system provides you. Certainly it aids materially.

As I know from personal experience, the entire subject of medicine can be exhaustively taken up and completed from the 1st of June to the 10th of September.

The schedule is not only of use to you as a student, but in actual practice it can be used every day. What better system is needed for reviewing the symptoms of a patient than the one given under symptomatology? How can you omit any important investigation if you follow the system through a physical examination?

When medical students realize the benefit to be derived from system, they will quickly accept it. It is an idea of mine that the schedule which I have given you ought to be the subject of the first lectures of those who teach medicine in our medical colleges.

Clinical Department.

A CASE OF ACUTE YELLOW ATROPHY OF THE LIVER: A CASE OF RAPID SARCOMATOSIS.¹

BY F. C. SHATTUCK, M.D.

I. ACUTE YELLOW ATROPHY OF THE LIVER.

A WELL-DEVELOPED and nourished woman, apparently between twenty and thirty years of age, was admitted to the Massachusetts General Hospital, April 5, 1894. No history was obtained until after her death, as no friends accompanied her, and she was unconscious on admission, remaining so to the end.

She was deeply jaundiced; pulse 70; respiration 20, stertorous; temperature 97°; pupils equal, contracting or dilating on exposure to light. There was some rigidity of the arms, but no paralysis could be detected. Physical examination was otherwise negative, except that the liver dulness was very small and that the lower abdomen was occupied by a tumor corresponding to an impregnated uterus at the fifth or sixth month. No fetal heart or placental souffle could be heard, and there was no bluish discoloration at the introitus vaginæ. A probable diagnosis of acute yellow atrophy of the liver was made, and the catheter was used to get a specimen of urine which was submitted to Prof. E. S. Wood. This secretion showed only seventy-five per cent. of urea, a slight trace of albumin, with pigment; a little blood and renal epithelium free and on casts, a few hyaline and brown granular casts, an occasional epithelial cast. The

cells were stained with bile and with bilirobin crystals. Leucin and tyrosin absent. The blood examination was negative. In one of four cultures made from the blood in glycerine agar before death a small growth of staphylococcus aureus occurred. In view of the negative results of the autopsy cultures this was doubtless due to contamination.

The coma became rather less deep for a time and the patient became very restless. But no marked change in the symptoms occurred until 9 P. M., April 6th, when tonic spasm began in the left leg, soon involving the whole body, and passing off with some clonic spasm of the left arm. Death at 10.40 P. M.

It was then learned that she had been married three and one-half years, had a child two years old, considered herself now six months pregnant, and was perfectly well until three weeks ago, when she noticed red spots on various parts of her body, disappearing in a few days. A week ago jaundice first appeared and rapidly deepened. She kept at work and was only "a little sick," until two days before entrance, when she became worse. April 4th she could "hardly speak from weakness," vomited several times, once a little blood, and gradually became unconscious, fully so at 11 P. M.

The great viscera were extracted through the rectum and submitted to Dr. Whitney, whose report is summarized as follows:

Lungs.—Negative.

Heart.—Extreme and universal fatty degeneration shown by the microscope.

Liver.—Reduced at least one-half in volume, capsule not wrinkled, organ fairly firm, form symmetrical. The microscope showed that the liver cells in the centre of the lobules were entirely destroyed and those at the periphery filled with fat drops of varying size. Many of the cells were filled with minute fatty molecules. The region of the portal vessels was infiltrated with round cells, invading more or less extensively the lobules.

Spleen, large, firm, dark-red in color; the follicles not distinct.

Kidneys.—The microscope showed extensive fatty degeneration of the renal tubules.

Pathological Diagnosis.—Acute yellow atrophy of the liver with jaundice. Acute fatty degeneration of the heart and kidneys. Hyperplasia of the spleen. Glycerine agar cultures of the liver, spleen and kidneys were negative.

This is the first case of this rare affection which has come under my observation both clinically and pathologically. The course was rapid. The case was in most respects typical, and the only important diagnostic feature which was absent during life was the leucin and tyrosin in the urine. Out of fourteen cases Riess says they were absent only once. Their absence in the liver post mortem is also noteworthy. The necessity for a purely objective diagnosis added to the interest of the case. Advanced pregnancy in a young woman the condition of whose general nutrition showed that the process must have been of short duration, deep coma, intense icterus, the absence of fever, and negative results from physical examination, except for a marked diminution in the liver dulness—these points were sufficient to establish the diagnosis beyond reasonable doubt.

Tenderness in the hepatic region, even during coma, is spoken of as a common symptom. It was ab-

¹ Read before the Boston Society for Medical Improvement April 9, 1894.