

during loading or shoveling, and, as every physician knows, the most efficacious way of administering nitroglycerin is to dissolve the triturate in the mouth. Another way of absorbing this poison is through the skin. Hence, these miners complain of headache, palpitation and nausea. Sometimes the men working on the tippie out in the open complain, too, as they breathe this dust when the cars or wagons are dumped.

During the past year Congress passed a law establishing a Bureau of Mines on account of the great number of miners killed or maimed annually as a result of a lack of safety devices. It may be opportune for the physicians to make some effort to better the condition of the miner from a hygienic and sanitary standpoint.

If in one of our naval ships we did not have elaborate systems of ventilation and did not make careful tests for the least increase in carbon dioxide gas for the several hundred men confined below—if we did not prohibit promiscuous expectorating, urinating and defecating, what a deplorable ship and state of health we should have!

It is no less important to have a clean, well-ventilated mine for the several hundred men working in it. The mere fact that the filth is hidden in darkness is no excuse for permitting a lack of sanitary precautions which we would not countenance one moment in the open light. We should provide our mines with better ventilation and more experts capable of analyzing the air.

Physicians in mining towns are without authority. It seems as though it might come within the province of this new bureau to make rules in regard to sanitary measures outside the mine as well as inside. Without chronic gas poisoning, typhoid, tuberculosis, hookworm, chronic nitroglycerin poisoning, and other preventable diseases, as well as fleas and chiggers, perhaps there would be no "miners' consumption."

Some physicians jump to the conclusion that the miner has general pulmonary fibrosis (anthracosis). As a matter of fact, the miner of to-day inhales very little dust, much less than the coal-handlers outside inhale, and he does not have evidences of catarrhal inflammation of the respiratory tract to the same degree as the men working in coal dust, who undoubtedly have anthracosis.

Other physicians account for the miner's pallor by the lack of sunshine, without considering real anemia. Many men have continued to work in dark but well-ventilated places other than mines for many years without developing anemia or marked pallor.

It is our duty to conduct some serious investigations in regard to the health of our miners. We should have more data at hand obtained from blood-examinations, post-mortem examinations, air analyses and other examinations which may give us exact information.

### FATAL GUNSHOT WOUND

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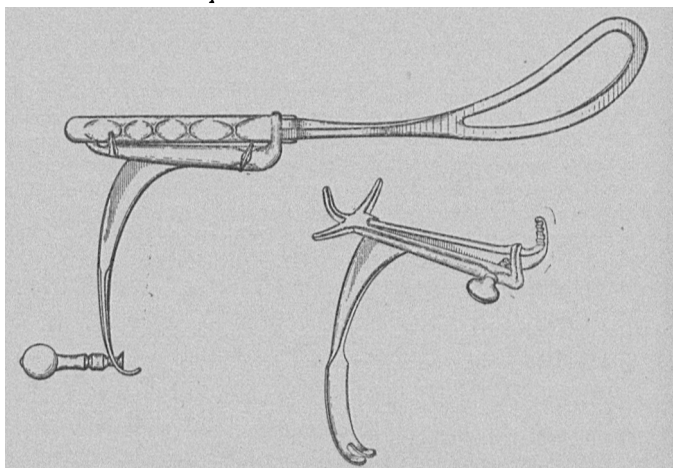
Oct. 21, 1910, I was called to see a boy about 10 years of age, who had been accidentally shot by a .44 caliber rifle, in the hands of a younger brother. The bullet entered the knee-joint from the anterior side, just internal to the patella, and passed completely through the joint, severing the popliteal artery. I arrived about ten minutes after the accident had occurred, but the loss of blood was so great, that the patient lived but a few minutes, never having regained consciousness. This emphasizes the necessity of instruction in the public schools regarding "first aid to the injured."

### AXIS TRACTION HANDLE FOR OBSTETRIC FORCEPS

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The illustration shows a handle that can be readily and quickly attached to any obstetric forceps thereby making the latter a complete axis traction forceps, possessing the following advantages:

1. It is light, simple in construction, having only three parts, and very easy to apply to any forceps handle when axis traction is required.



Axis traction forceps. The figure at the top shows the handle attached to the ordinary obstetric forceps. Below on the right is a view of the handle detached.

2. It prevents the lock of the forceps from slipping and at the same time does not hinder the forceps blades from being opened or closed at the wish of the operator.

3. The handle alone is sufficient for most of the axis traction cases, but when a great amount of traction is required a "T" or cross-bar can be attached through the slot in the lower end of handle, making a larger grip.

4. This handle with the ordinary forceps that is found in the obstetric bag of every physician will prepare him successfully to terminate cases demanding a high forceps operation.

### WARNING AGAINST THE INDIA-INK METHOD FOR THE SPIROCHÆTA PALLIDA\*

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Since recognition of the *Spirochæta pallida* as the probable cause of syphilis, now five and a half years ago, the staining methods, as has been said, are almost as numerous as the investigators who have studied it. Out of the many, there is one which has of late been especially prominent. I refer to the India-ink method first recommended by Burri,<sup>1</sup> and since by a number of other investigators.

This method, which consists in mixing the serum with diluted India ink on a glass slide and allowing it to dry in the air, is so easily carried out and requires so little technic, that its use, sooner or later, would have become quite universal. Recently, I used this method on a number of occasions, and I desire to relate my experience with it.

\* Presented at the clinical and pathologic meeting of the Allegheny County Medical Society, Oct. 18, 1910.

1. Burri: Deutsch. med. Wochenschr., 1910, No. 38, p. 1762.

In one patient who had a typical case of syphilis, I found true spirochetes with the India-ink stain immediately. In another case, I saw the spirochetes first with the illuminated dark field and then with India ink. In neither of these specimens did I have occasion to make a prolonged search. My third use of this stain was in the case of an adult who presented an atypical case of varicella.

The diagnosis was later verified by Dr. B. A. Booth, physician to the Contagious Hospital.

Because of the possibility of syphilis in this case, I had taken a drop of serum from a vesicle and mixed it with India ink for examination. To my surprise I saw at first sight what I supposed were spirochetes. Closer scrutiny of these objects, however, made it dubious as to their actually being spirochetes. It then occurred to me that whatever they might be, before supposing them to have come from the serum of the vesicle, it would be well to examine the pure ink. This I did and was chagrined to find that the same wavy fibers were present.

I exhibited the pure ink specimens to a number of laboratory workers, and all agreed that the non-critical and inexperienced observer might easily mistake these for spirochetes.

The ink used was Higgins' India ink, which is said to have the largest sale, and therefore would be the most likely one offered to buyers. Since then Dr. George A. Holliday, who is especially interested in this subject, and I, have examined all the obtainable inks that are sold as India ink and the results are here given.

*Description.*—The figures seen in the dark granular field of the India ink specimens correspond in appearance to spirochetes, bacilli, cocci and streptococci. Some fields, especially in the Higgins ink, were literally filled with these bodies, and even if *Spirochæta pallida* had been present, it would have been difficult to distinguish them. In most of the fibers the undulations are not large; some, however, especially in the darker fields in which the light refraction is greater, appear characteristic enough to be deceiving.

*Inks Examined.*—Higgins' Black India Ink: Three bottles all show long and short wavy fibers, and straight fibers resembling coarse bacilli; also structures resembling coarse streptococci.

Higgins' Violet Ink: Unsatisfactory. The ground is not sufficiently dark.

Higgins' Red Ink: Also unsatisfactory.

Hine (Paris) India Ink: In the dark areas of the field, the ink seems to crack as enameled surfaces do; and these cracks which appear as glistening wavy fibers against the black background may prove to be misleading. This ink contained no actual fibers.

Kallos' Indelible Drawing Ink: This is offered as an India ink although it is not a true India ink. In this I found streptococcus-like structures which at times appeared as wavy spirilla.

Collins' India Ink: This shows innumerable straight and wavy figures against the dark background that could be misleading.

Gunther: Wagner's India ink contains wavy fibers, some of which in length, diameter and undulations, bear a close resemblance to *Spirochæta pallida*.

A culture of Higgins' India ink on Loeffler's blood-mixture at the end of seventy-two hours was negative.

Since the accurate determination of the presence of *Spirochæta pallida* is at present already often complicated by the presence of *Spirochæta refringens*, to use the India inks would be to add one more source of error. The spirochete-like objects seen with these inks seem capable of assuming various shapes and sizes and while most of them, by the experienced microscopists, would not receive very serious consideration, some of the speci-

mens that I have come across at a magnification of 1,300 diameters and higher, could delude even the expert.

I know a number of men who have occasion to diagnose many cases of syphilis, and who have been using the India-ink method for some time. These men do not consider themselves expert microscopists and they admitted that they may have made this error.

In the past, diagnosis of this disease has been based largely on full development of the clinical symptoms, but at present it is being frequently made on finding the spirochetes. For that reason, the greatest accuracy must be exercised, and the possibilities of error should be reduced to a minimum.

In consideration of the above findings, I offer this experience as a warning against the India-ink method by the non-expert and the general practitioner to whom it has been so strongly recommended.

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## Therapeutics

### HYGIENE OF THE MOUTH AND TEETH

The great importance of the preservation of the teeth is now recognized by all persons of intelligence. Crowding together of the teeth in the jaw and irregularities and depressions in the individual teeth are causes of dental caries. A direct and exciting cause is the lodgment of particles of food between the teeth and in the depressions on the surfaces. These particles of food undergo fermentation, with the production of bacteria and acids which attack and destroy the enamel of the teeth and then cause caries of the body of the teeth. Not all food is equally injurious in this way. It is chiefly the carbohydrates, the starches and sugars, which undergo this acid fermentation. The proteins, on the other hand, do not undergo the same acid fermentation and, consequently, they are less injurious.

It is evident, therefore, that in order to prevent dental caries it is necessary to prevent the stagnation or lodgment of the starches and sugars of the food in the mouth, and particularly in, on, or between the teeth.

The decomposition of the food lodged in the mouth commences very quickly, and therefore the rule of thoroughly brushing the teeth after each meal should be observed by every member of every household. The best instrument for this purpose is an old-fashioned tooth-brush made of hog's bristles. The bristles should not be so stiff as to injure the gums, and yet stiff enough to thoroughly remove all foreign matter from between the teeth. Neither a wooden (the best toothpick), nor a quill toothpick, nor silk floss, nor a napkin or towel, nor a rubber tooth-brush can accomplish this purpose nearly so well as a tooth-brush of bristles.

Even with the greatest care it is extremely difficult to keep the teeth entirely clean, and the majority of people are careless in the care of their teeth. Consequently, it is of great importance to arrange the food so as to diminish the tendency to the lodgment of the starches and sugars of the food between the teeth. These deposits are often caused by eating foods in a soft, moist, and mushy condition, and especially by eating them at the end of the meal. On the other hand, there is less tendency to this stagnation of the food around the teeth if the food eaten is dry, fibrous, and coarse, so as to require prolonged mastication. Incidentally this prolonged mastication of hard foods, in children, tends to strengthen