failed to show as good curative results as one dose of salvarsan.

Second—In order to cure seventy or eighty per cent of the cases it will be necessary to use four or five times as much neo-salvarsan as salvarsan.

Third—In view of the increased number of injections of neo-salvarsan to bring about cures as stated in conclusion two, it becomes a far more expensive drug to use.

Fourth—The drug should be used that will bring about the best results in the shortest possible time.

Fifth—The complement fixation test is of the greatest value in diagnosis or as an indicator of the results of treatment.

Sixth—In all doubtful cases at least two or three Wassermann tests should be made before a diagnosis is decided upon.

Our personal experience with neo-salvarsan is limited to one or two cases, for we have used salvarsan continuously in our practice despite the ease of administration of the new preparation.

We wish to append a few statistics taken from the literature, which represents the average work of serologists:

Primary average for first five weeks.....	60%
Secondary	95%
Tertiary	85%
Latent	65%
Congenital	89%
Parasymphylis	68%

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THE REDUCTION OF PREVENTABLE DISASTERS IN EAR, NOSE AND THROAT SURGERY.*

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The total elimination of the avoidable failures in our special field of surgery, will usher in the golden dawn of that brighter day when only the unpreventable—the unconquerable—will stand in our way. On such an occasion it cannot but prove wholesome to briefly consider how the equation of errors can be reduced. The taking stock, as it were, of "corrigible faults," the frank expose of our deficiencies must at least have that chastening influence which will help to inspire a worthy ambition on our part to work with might and main with a view of still further reducing the preventable mishaps of surgery. Every such disaster is to be listed in one or several of the following headings:

- (1) Errors in diagnosis.
- (2) Insufficient indications for operation.
- (3) Inadequate weight given to indications.
- (4) Incomplete operation.
- (5) Faulty technic.
- (6) Human fallibility.
- (7) The unforeseeable and unpreventable contingencies of surgery.

Looking at this matter in the "cold light of truth" gathered from that dear school of experience, as Franklin said, the most striking

*Chairman's Address, Section on Ophthalmology, Rhinology, Otolaryngology, Southern Medical Association, Eighth Annual meeting, Richmond, Va., Nov. 9-12, 1914.

thing is that among the contingencies of errors the one most responsible for disaster is the failure of early recognition.

For example, it is the delayed diagnosis followed by the tardy operative treatment of mastoiditis which renders possible the life-threatening sequels. The correct interpretation of pathologic processes within the mastoid may at times present great difficulties. We may have to pin our faith on the diagnosis on the most meagre evidence. The pain on pressure may be very slight, the otorrhea scant, the temperature but scarcely above normal, the subjective pain not referred to the mastoid. This is an atypical picture, yet a world of trouble may be brewing in just such a mastoiditis. It is in this recognition of the unusual that we can best eliminate from mastoid surgery the occasional disasters following a late diagnosis. Our limitations in diagnosing pathologic changes in the mastoid may occasionally narrow itself to one final symptom. Now, if we are to prevent the occurrence of such distressing complications as meningitis, cerebrol abscesses, septicemia and sigmoid thrombosis, we must not fail to recognize such an infallible danger signal as sagging of the posterior-superior wall of the external auditory meatus.

There is not the slightest exaggeration in the statement that the failure to recognize a purulent collection in the tympanum of infants and young subjects, which means a delayed incision of the ear drum, is still costing too many lives. The pity of it is that the persistent temperature, unexplained by any other morbid condition, does not at once direct suspicion to the middle ear that now admitted vulnerable organ of child-life.

While there is no more effective surgery than that of the middle ear when it contains pus, still, in very young subjects, the signals of distress may not be sufficiently glaring to permit immediate diagnosis. We are thus lured into the mazes of doubt and uncertainty. The results of delay, however, are so regrettable that exploratory tympanotomy will be the most justifiable way of establishing even a

suspected diagnosis. In the history of the case we are looking for pain referable to the ear, but, in the infant at least, this may be so evanescent that we seek elsewhere for the cause of the persisting temperature. Nature's perforation of the eardrum has not occurred, and it is only when the unmistakable presence of meningitis is recognized that the possibility of a middle ear abscess looms up before us.

The too late demonstration of malignant tumors of the larynx is robbing thyrotomy of one of its brilliant conquests. There are too many diagnoses of chronic laryngitis when the trouble is really incipient malignancy. Surgical intervention if sought early in an organ with the scantiest lymphatic supply, is radiant with the promise of permanent cure, but if delayed is most discouraging.

The inadequate appreciation of urgent indications in the acute laryngeal stenoses of early life is still bearing a very large death toll. The signs of urgency are compelling enough, yet there is still a woeiful disregard of the persistent and increasing dyspnea as infallible indications for instrumental relief. While even in the absence of bacteriologic proof and with no signs of membranous deposits, it is safer to assume that the laryngitis is diphtheritic, on the other hand too much reliance is placed in the serum-therapy relative to its power to quickly relieve the stenosis. The suprasternal and diaphragmatic retraction serve as an unfailing index as to the degree of the stenosis. Not to fully appreciate the grave significance of such signs is to invite disaster. The application of operative life-saving measures should be long before cyanosis and a weak heart action largely reduce the chances of success. In too many cases the opportune moment for mechanical help, intubation of tracheotomy, slips by while we are waiting for this expected rapid action of the serum.

To avoid the avoidable is not beyond realization in our field of endeavor. Thus it is that delay in opening a peritonsillar abscess or failure to do so on the plea that Nature will ultimately though tardily come to the rescue, is

an unpardonable sin of surgical omission. Indeed, is it not a sad commentary on our art that fatal accidents such as septic emboli, asphyxia, hemorrhage, and dilatation of the heart, should follow in the wake of an affection so amenable to well-directed—timely—surgery.

The great difficulty in correctly interpreting a symptom complex is sometimes responsible for disaster. Infection of one, or several, of the nasal accessory sinuses sometimes presents symptoms which are truly misleading. They resemble the false beacons which confuse the mariner in the midst of a hurricane. Some of the nasal accessory sinuses, notably the ethmoid and sphenoid, from their very inaccessibility, often give such indefinite signs of urgency that the intracranial invasion is on us ere we can bring about our surgical attack against the original focus of infection. Such limitations to accuracy in the diagnosis of the unusual and the obscure do not, however, free from blame our persistency in sometimes considering a frontal sinusitis as supraorbital neuralgia. Earlier surgical intervention in the acute emergencies of these sinus affections must reduce such deplorable results as the intracranial involvements. In the chronic cases it might not be unwise to operate long before medical and local treatment have failed.

It must be admitted that we, as surgeons, have cultivated technical skill to a rare degree of perfection. We must also admit that the continuance of loopholes, in at least one of our operations, too frequently gives occasion for alarming accidents if not positive disasters. A fatal secondary hemorrhage following tonsillectomy in the practice of a confrere, and several disquieting ones in my own, have long since disillusioned me relative to "the simple removal of the tonsil, that's all." As long as we shall have anomalous vascular distributions, abnormally large vessels, delayed coagulation, other unknown and sometimes unknowable elements, we shall have to face the possibility of a death from loss of blood. The more recent advances in the technique of ap-

plying a safe and surgical hemostasis during tonsillectomy or following it, if the emergency presents itself, makes me feel that a fatal issue from loss of blood can be largely eliminated from our list of catastrophes. In ligation, and in suture-ligation, we have the only sure means of guarding against dangerous intercurrent and secondary hemorrhages.

Of all the disasters in surgery the most pathetic are those occurring during anesthesia. Regional difficulties especially surround us in operative procedures about the nose and throat and these are unquestionably added dangers to those of the anesthetic. Our technical skill and quick judgment must necessarily be taxed, sooner or later, if we operate long enough, in quickly coping with emergencies potent in life-destroying possibilities. I am impressed with the statement of an experienced anesthetist which says that anesthesia in each individual case is but an "experimental anesthesia." Only a confidence born of inexperience and fool-hardiness can see no danger in the anesthetic.

Among the contingencies which belong to the unpreventable, because unforeseeable, are the reflex inhibitions. An anatomical region so richly innervated, and one subjected to all manner of mechanical injury incident to operations, must oftener than is recorded offer opportunities for fatal reflex inhibitions. Such a calamity occurred in my own practice*.

Pulmonary embolus, that most unpreventable of all post-operative surgical accidents, is not unheard of in our sphere of surgery. It followed a tonsillectomy in my own practice. Nothing at present known can forestall such accidents, they are to be accepted as "the chances of surgery," they are the bolt coming from a clear sky.

I might mention other emergencies, but those already referred to are among the more common in our field of work. At best I can only hope in such an address to touch the fringes of so broad a subject.

The practical question which now suggests

*New Orleans Medical and Surgical Journal, 1914. Vol. 66, page 113.

itself is. "How can we reduce the avoidable to a safe margin?" At once the truth is forced upon us by bitter experiences and disastrous delays that our failures could be substantially minimized by popularizing the idea that sinister dangers lurk sometimes under apparently the most innocuous group of symptoms. For example, we must teach the lay mind the urgency of aural pain, the significance of an otorrhea, the dangers that may mask behind supraorbital or infra orbital pain, if we can hope to secure that timely surgery which would save us from the intracranial complications of middle ear and accessory sinus suppurative processes. The layman, and some physicians, need be reminded of the impending dangers of a laryngitis which expresses itself by dysphonia and dyspnea if we would take time by the forelock.

The present and coming generations of physicians should remember that persistent hoarseness needs a diagnosis, and that the prognosis of cancer is still serious, delay in such an affection is just as hopeless as it used to be.

Let us forget it is well to re-emphasize that the brilliant record of mastoid surgery in the acute emergencies is not uninfluenced by the fact that less precious time is now lost in waiting. We, sometimes not unwisely, operate on mere suspicion and only then realize what delay, while we are waiting for accuracy in diagnosis, would have meant. Even in this day of general enlightenment we must still recall the dangers attending the too long continued expectant plan of procedure in a peritonsillar abscess.

Maurice Richardson, of Boston, once said, "That the tendency of progress is through disaster." If knowledge is power, and we all believe it to be, then the remedy for avoiding the repetition of disaster is evidently through increase and dissemination of knowledge. It thus becomes the duty of those of riper years, of those with the larger experience in hospital service, of those especially connected with teaching institutions, undergraduate and post-

graduate, to record not only their successes, but to tell unflinchingly of their failures. This will be, at least, an act of reparation for errors of commission and omission, and will bear such rich fruitage that our art will move on in rapid progress towards better technical skill, enlarged mental vision, a better understanding of danger signals, a clearer appreciation of the unusual and a typical, surer judgment in applying prompt and adequate surgical relief, and the promotion of an enlightened experience which may still further assist in reducing the possibilities of error in our field of surgery.

TONSILLECTOMY DURING ACUTE ENDOCARDITIS.*

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In 1900 Dr. Abraham, of New York, presented to the Alabama State Medical Association a most interesting paper entitled, "Acute Tonsillar Diseases and Their Sequelae." He mentions that in 1866 Trousseau was the first to suggest the causal relationship of acute tonsillitis to rheumatic fever. He refers to the British Medical Journal, 1906, where Wade reports several cases of rheumatism following the first attack of tonsilitis, and also states that Wagner in 1895 reports two cases in which the same organism found in the diseased tonsils was subsequently isolated from the knee joint and urine of patients with rheumatism. Subsequent to the literature quoted in Abraham's paper various other authors have made exhaustive studies of the relationship between tonsillar diseases and acute rheumatic fever.

In Medical News, p. 44, of June, 1887, Haig-Brown (Tonsillitis-Adolescence) reports 345 cases of tonsillitis in 43 of which a cardiac murmur developed, 8 cases terminating in

* Read before the Jefferson County (Alabama) Medical Society, March 16, 1914.