ed, and its tissue almost broken down. Outer anterior portion of left optic thalamus softened and grumous.

Microscopic examination of sections of the tumors showed them to be made up of small cells, with very little connective tissue.

There was not in this case, as there was in the other above mentioned, any pressure from a tumor within or behind the orbit which could have directly caused the protrusion of the eyeball.

SEVERE CASE OF TETANUS CURED BY EXSECTION OF A NERVE.

By GEORGE E. FOSTER, M.D., Springfield, Mass.

M. L., aged 24; married; by birth an American, and by occupation a seamstress; bought a pair of shoes July 20th, 1869, and put them on; while walking, she felt a sharp substance pricking the skin of the anterior and interior aspect of the right heel. She continued to walk, but with pain, until she stepped from the curbstone to cross the street, when accidentally her whole weight was thrown on to the heel and something was driven into it which caused exquisite pain. She called a carriage which was passing, and rode to her residence. Upon removing the shoe, a shoe-nail was found driven into the heel, the end protruding. A shoemaker who lived near was called; he removed it with pincers, and upon examination found it to be whole and one inch and a quarter in length. The pain subsided and the wound healed, leaving no trace of the injury. No more was thought of it until Aug. 3d, at 12 o'clock, when she awoke in the night with chills, stiffness of the limbs and slight twitchings of the muscles of the arms. Chafing and hot drinks were resorted to by the family, but without changing the symptoms. At 3, A.M., the family physician was called; at that time, she had spasms of all the limbs, and well-marked trismus, mind clear, pulse full. He tried all the remedies that could be thought of, but she became worse very fast, and at 8, A.M. another physician was called, who pronounced the case hopeless. The Doctor in charge not willing to give up, they sent for me, but being out of town I did not see her until 12, M. She was then very weak, spasms constant, trismus well-marked, pulse 97 and very feeble, mind perfectly clear. All the known remedies were again tried, but with no better result. She could give no cause for the attack. The physician in attendance, while conversing,

accidentally spoke of the accident three weeks before, and the family exhibited the nail, which was whole, but upon examination a slight spot of rust was found near the point. A subcutaneous injection of a solution of the sulphate of atropia was made over the posterior tibial nerve, but without relief. At 4.30, P. M., she being under the influence of ether, I cut down upon and with care removed about two lines of the internal plantar nerve; hot cataplasms of flaxseed, yeast and laudanum, were ordered, to be applied once every hour and a half. Pulse one hour after the operation was 45 and fluttering, pupil of right eye fully dilated and of the left contracted, mind wandering. Passed a bad night (no spasm or trismus after the operation); wine whey was given both by the mouth and rectum every hour during the night.

Aug. 4th, 8, A.M.—Mind again clear, pulse 94 but weak, has gained strength, wound suppurating.

5th.—Pulse 86 and good. Beef tea and wine whey still continued, with toast; wound suppurating freely.

6th.—Every symptom good—still quite weak.

10th.—Ordered the wound to be kept open five days.

Jan. 12th, 1870.—She is as well as ever; no spasm of any kind since the operation.

COLD-WATER TREATMENT OF TYPHOID FEVER IN MUNICH.

Translated from the Allg. Med. Central Ztg., by D. F. LINCOLN, M.D.

In the course of the preceding year the treatment of typhus by cold water, after the method of Brand, has found its way into nearly all the large hospitals of Germany; and its eminent success has received such unanimous confirmation, that we may very properly direct especial attention to those cases which have resulted fatally in spite of the treatment.

In the late Prof. von Pfeufer's department of the General Hospital in Munich, 126 typhoid patients underwent the cold-water treatment from the time of its introduction (Oct. 1, 1868) to June 1, 1869. Of these, there died ten; or 7.9 per cent; while the previous mortality in the same department is reckoned at 12-15 per cent. And in an epidemic which broke out in the first part of June, and which is at present on the decline, only two have died out of more than one hundred patients treated in the department.

Half-baths, of from 10° to 16° R (55–68° F.), and lasting from a quarter to half an hour, were almost exclusively used. As soon as the temperature under the arm-pit reached 39.5° C. (103.1° F.) the patient was seated in the bath and the water in the bath was thrown and poured over him; if the temperature had risen to 40° C. (104° F.) or higher, ice-water was poured over him while he remained in the bath. In the intervals of bathing he was covered with compresses wet in cold water, changed whenever required; these have now been replaced by large bags of ice applied to head, breast and abdomen. Ziemssen's method of gradually cooling the baths could only be used in exceptional cases, owing to a deficiency in the number of attendants. When the bath was contraindicated, frequent washings with ice-water, lasting ten or twenty minutes, were substituted. Of late the patients in this department have been covered with a simple linen cloth instead of a woollen one, and the author believes that this change has been a perceptible assistance to the cold-water treatment. Different medicines were given only exceptionally, when urgently required.

The following are the general conclusions in reference to the ten fatal cases.

1. In seven, the autopsy revealed the existence of ileo-colo-typhus; of these, three were cases of relapse. Three died in the fifth week, four in the fourth, two in the third and one in the second. Important alterations in the lungs were observed in all but one case; viz., croupous pneumonia three times; splenization three times; larger or smaller infarctions three times; malignant diseases of the larynx three times. Intestinal hæmorrhage was observed three times, but was only once of consequence.

2. As to the causes of death in the individual cases, they appear to be as follows: Three died of functional disturbance of the respiratory apparatus, caused by croupous pneumonia. Six died from the deleterious effects of febrile elevation of temperature, some directly from the heart, others indirectly through alterations in the lungs. In two of these six cases, the baths were not thoroughly administered; in one, the treatment was commenced too late; in three, the individual power of resistance to elevation of temperature was insufficient—one patient having tuberculosis, another chronic alcoholism, a third hypertrophy of the heart. One case died from hyperæmia in all the vital organs, especially the lungs, in consequence of forcing the cold baths too

far; the heart in this instance, especially the left ventricle, was hypertrophied, and the pericardium was adherent to the entire surface of the right ventricle.*

The most important conclusions drawn from these ten cases are as follows:—

1. In order to determine the causes of death in the several cases, it is absolutely necessary to make a careful comparison of the clinical records with the results of autopsies; and above all, to make the most diligent microscopical examination of all vital organs.

2. The cold-water treatment fails to arrest the fatal result—

(a) in cases where death is caused by local lesions in the intestine (perforation, melæna);

(b) when death is caused by the inter-currence of local affections, as croupous pneumonia;

(c) in cases which come too late under treatment—as when there are prominent symptoms of fatty degeneration, especially of the muscles of the heart;

(d) when the temperature is permanently high, but the bath is contra-indicated by existing conditions (heart disease) or by subsequent circumstances (intestinal hæmorrhage);

(e) when the individual has but feeble power to resist the action of high febrile temperature (in tuberculosis or alcoholism), and while the efforts made to reduce that temperature are but imperfectly successful.

3. Pneumonia does not contra-indicate the use of cold baths. Heart diseases require that they shall at least be administered in their mildest form (Ziemssen's baths).

4. A definite temperature (39.5°=103.1° F.) cannot by itself be regarded as establishing the necessity of the bath. Another factor is equally important, namely, the duration; for if the temperature ranges from 39° to 39.5° during several hours, the bath is required at least as much as if the latter degree were observed but once, while

* In spite of the most violent opposition from the patient, he was made to take twenty-four cold baths within five days. This did not effect any permanent reduction of temperature. His reaction, both in the bath and afterwards, was excessive; his complaints of extreme constriction, difficulty in breathing, and suffocation, did not diminish upon growing accustomed to the baths, as is so often the case with other patients; cyanosis, and long violent chills, were repeatedly observed after the bath. On the 22d of December he took seven baths, after the last of which he fell into a state of collapse, which required the use of stimulants, and induced the physician to suspend the application of cold in this energetic form. The temperature, however, had not been reduced by this bath. On the next day the patient had somewhat recovered, but his general condition was considerably below what it had been.

the general range of temperature were low. Experience has shown us, at least, that a fever with distinct remissions and exacerbations, though the latter may be very considerable, is much better borne than a temperature which is moderately but continuously high.

6. Account must be taken, as far as possible, of the individual power of resistance. The thermometer may not always furnish the first indication for the bath; for the individual weakness may be first denoted by a failure of the pulse, or the occurrence of delirium, or of albuminuria.

7. The cold-water treatment is susceptible of still further improvement.

Bibliographical Notices.

On the Physical Basis of Life. By T. H. HUXLEY, LL.D., F.R.S. New Haven: Charles C. Chatfield 1870.

THIS lecture, originally delivered in Edinburgh, Nov. 18, 1868, sets forth in a popular form that theory of life which it is difficult, notwithstanding the author's disavowal, to avoid calling materialistic.

Dr. Huxley begins by illustrating the various forms in which the "physical basis of life," or "protoplasm," is found, from the lowest fungus to the great trees of California, or the invisible animalculæ to the whale, and shows that the essential characteristics of all living things are similar in kind though differing in degree. These views, with their further illustrations and various facts of inorganic and organic chemistry, are not, however, what make this lecture so remarkable and have caused it to be so widely circulated in England and in this country. The following sentences will, better than any others which can be quoted within reasonable limits, express the views of the lecturer.

"If the properties of water may be properly said to result from the nature and disposition of its component molecules, I can find no intelligible ground for refusing to say that the properties of protoplasm result from the nature and disposition of its molecules."

"It may seem a small thing to admit that the dull vital actions of a fungus, or a foraminifer, are the properties of their protoplasm, and are the results of the nature of the matter of which they are composed."

"But if, as I have endeavored to prove to you, their protoplasm is essentially iden-

tical with, and most readily converted into, that of any animal, I can discover no logical halting place between the admission that such is the case and the further concession that all vital action may, with equal propriety, be said to be the result of the molecular forces of the protoplasm which displays it. And if so, it must be true, in the same sense and to the same extent, that the thoughts to which I am now giving utterance, and your thoughts regarding them, are the expression of molecular changes in that matter of life which is the source of our other vital phenomena."

The "gross and brutal materialism" of which Dr. Huxley expects to be accused, he repudiates, but not so much by explaining away or modifying the views just expressed, as by saying what may be condensed into "I do not know anything more." His concluding sentence really expresses the true scope of his argument, and the doctrines which it might seem to support are opposed by two admissions: 1st, that protoplasm only becomes such under the influence of preëxisting protoplasm (p. 25); and 2d, "that our volition counts for something as a condition of the course of events" (p. 34).

The sentence referred to is as follows:—

"Thus there can be little doubt that the further science advances, the more extensively and consistently will all the phenomena of nature be represented by materialistic formulæ and symbols. But the man of science, who, forgetting the limits of philosophical inquiry, slides from these formulæ and symbols into what is commonly understood by materialism, seems to me to place himself on a level with the mathematician, who should mistake the x's and y's with which he works out his problems, for real entities; and with this further disadvantage as compared with the mathematician, that the blunders of the latter are of no practical consequence, while the errors of systematic materialism may paralyze the energies and destroy the beauty of a life."

This lecture, though highly interesting as showing the position of so eminent a thinker as Prof. Huxley, and many others with him, really testifies to no important advance in knowledge, but only gives the key to a new method; for, admitting as fully as we please, that all the higher as well as lower vital actions are coincident with changes of certain masses of protoplasm, the question of cause is not in the least touched thereby. If Prof. Huxley declines to consider the questions usually called metaphysical, he has undoubtedly a right