

Scientific. &c.,

DR. FOSTER ON THE NATURE AND PROPERTIES OF MUSCLE.

Professor Michael Foster began his second lecture on the Nutrition of Animals, at the Royal Institution by the statement that every living thing and substance, moves, feels, feeds, breathes, and wastes in various degrees. It feels in order to move, it feeds and breathes that it may feel and move, and it wastes in doing so. The body is composed of members, organs, and tissues, having all these functions, but in some they are overshadowed by the exaltation of others. Thus, muscle is chiefly given over to the task of movement, yet feels and breathes. Muscle, the lean part of meat, copiously charged with blood and nerves, is a very important portion of the body, and by far the largest part of our food is devoted to nutrition. Attached to a bone at its two ends by tendons, it gives rise to motion by its faculty of contraction when stimulated, and the amount of contraction (measurable by raising a weight) is the index of the vitality of a muscle. Contractility augments with the life of the muscle, wanes as it wanes, and vanishes when it dies.—Death generally means the death of the brain, but the turning-point is the death of the heart, through the imperious demand of the brain for fresh blood. In a swoon the heart stops, and the life of the brain flickers; but when the heart beats again blood flows to the brain, and it revives. In warm-blooded animals irrevocable death ensues when the heart stops even for a few minutes. Muscle, however, lives some time after the death of the heart and brain; and in cold-blooded animals maintains its contractility even after the removal of the heart and brain—a fact probably due to its getting up a store of food and oxygen, and to its power of discharging its waste products. Muscle is composed of water, carbonic gas, ammonia, and a little sulphur, phosphorus, and iron, and is a most complex and unstable compound; its structure being comparable to an inverted pyramid, built up in a most mysterious manner. Living muscle has been shown, by the researches of Dr. Hance Jones, to be of an alkaline character, while dead muscle is acid. It is supple, extensible, not easily broken, transparent, and elastic; while dead muscle is stiff, friable, non-elastic, and opaque.—There is probably a reservoir of energy in dead muscle, which goes off gradually as decomposition ensues; and this last may be arrested by freezing. On thawing, the contractility of the muscle revives for a time and then wanes away. These mysterious phenomena are probably partially of a mechanical character.

THE TWENTY LARGEST CITIES IN THE UNITED STATES.—The following is a list of the twenty most populous cities in the country, with their population, according to the completed census returns. For the sake of comparison, the population of the same cities in 1860 is also given, together with the rate per cent. of increase in ten years:

Table with 4 columns: No., City, 1870, 1860, Per Cent. Includes cities like New York, Philadelphia, Brooklyn, St. Louis, Chicago, Baltimore, Boston, Cincinnati, New Orleans, San Francisco, Buffalo, Washington, Newark, Louisville, Cleveland, Pittsburgh, Jersey City, Detroit, Milwaukee, Albany.

A HINT IN HORSE-SHOING.—A writer in the Western Rural says that a great saving of wear and expense may be effected in "rough-shoeing" by having the smith drive a small piece of cast steel into each heel-caulk and two into each toe. They can be cut very conveniently from a strip of steel five-eighths or three-fourths of an inch wide; they can be easily put into the toe-caulk while the shoe is being made. A new shoe is most easily fitted up in this way, yet an old one may be. After the shoe is fitted, the caulks should be hardened so that the steel will be as hard as a file. This plan is better than putting on steel toes, which will wear dull and not sharp, as the steel will in an iron toe.

"An! my dear fellow," said an old man to a friend, "I am weak and broken down with age. I used to walk entirely around the park every day; but now I can only walk half way round and look again."

LETTERS FROM ROME.

A BAPTIST CHURCH FORMED IN THE CITY OF ROME.

The Rev. Dr. Randolph on a visit to Europe for the benefit of his health, writes from Rome, to the Watchman and Reflector under date Jan. 19, 1871. He says:—

Two things have of late absorbed attention in the "Eternal City." The first is its occupation by the troops of Victor Emanuel, and its consequent absorption in the kingdom of Italy. The Roman forces, as you know, made no resistance, simply because resistance would be useless. They gracefully accepted the situation, and in three days from the entrance of the Italian army not a Roman soldier was to be seen, except about the Vatican. But the "Infallible" successor of St. Peter could not submit so readily. In fact he has not submitted yet. He is still playing the puerile farce of being "a prisoner." He holds receptions, it is true, and occasionally may be seen moving about the Vatican, as I saw him a few days ago. But he makes no public demonstrations, he participates in no public services. Yesterday was the festival of the "Chair of St. Peter," but as the Pope is "a prisoner" nothing but the ordinary daily service was held. Even the Christmas festival could not bring him out, but he insisted, through that week of ordinary gaiety and gladness, on playing the silly role of being "a prisoner." Mr. Beecher, in speaking of the exclusion of my hymn-singing friend George H. Stuart, said, "And this was done by Reformed Presbyterians. I wonder what they were before they were Reformed?" So if this weak and childish pretence of being a prisoner is the act of an "Infallible" Pope, it may well be asked what sort of a man must he have been while as yet he was fallible? It is greatly to be regretted that the Pope could not have acted a wiser part in his old age. He is, doubtless, in many respects, a very worthy man, and has done much to promote the welfare of Rome and advance the glory of his church. But in his present attitude he has set himself directly against the current of human thought and action, and the manifest power and purpose of Almighty God. Italian unity is a foregone conclusion, and the entire severance of the civil from the ecclesiastical authority may as well be accepted first as last, as one of the decrees of Heaven. Pius IX. had a magnificent chance at least to fall in with this ordinance of God, even if he did not approve of it, and so he might have saved his church from a long and bitter contest. Where the end will now be neither the wisest nor best of men is hardly competent to guess. Only this we know, God and truth will ultimately prevail.

The other absorbing topic to which I referred is the recent fearful inundation of Rome. Similar catastrophes have occurred here before, but no such flood as this has visited the city in two hundred years. A heavy body of snow had fallen upon the mountains, which was suddenly carried off by rain. The rise of water was fearful, both on account of its suddenness and its height. The rush came about daylight, on Wednesday morning, Dec. 28th. During the course of that day the Tiber rose about thirty feet. It swept through the city as though the streets were its natural channels. In the Corso—the Washington Street of Rome—it was from six to eight feet deep. The Piazza del Popolo was a lake in some places eight feet deep. The water approached to within one hundred and fifty or two hundred feet of the Piazza di Spagna, the strangers' quarter. In fact, more than half the city was overflowed. In the Pantheon the flood rose to the height of fourteen or fifteen feet. The poor Jews, whose quarter is in the most depressed portion of the city, suffered immensely. Occupying the ground floors, their effects were pretty generally destroyed. I walked through that part of the city yesterday. The wretchedness now there is terrible. A Roman beggar at any time is worse than a leech, but the whole kingdom of living creatures fails to furnish an illustration of such a beggar now. He is just like his own class, and that is all that can be said about it. Some of the little ragged, wretched looking Jews so wrought upon my sympathies that I had to give them a trifle, but no sooner was my hand in my pocket than a host came buzzing around me, just as bees round an open sugar barrel.

The scene during the prevalence of the water was peculiar. Crowds rushed to the Pincian Hill to witness it. Not only the lower part of the city, but the Campagna for miles around was like a lake. Boats and rafts went through the Corso, via Can-

dotti, Babuino and streets adjacent. Some enterprising artists took sketches of the Roman Venice. The loss of property was great. Silks and satins were afterwards hung up to dry like calicoes. Bronzcloths were washed to get out the mud. The deposit in jeweller's shops was sifted to find diamond pins and broches. In fact, wherever the waters went it was one sad scene of desolation.

The American visitors here at once contributed more than thirteen thousand francs to aid the sufferers. The English assisted also, but not to so large an amount. Victor Emanuel—whose entry into Rome had been delayed from time to time—hastened on from Florence, reaching here about four o'clock in the morning. He was received with enthusiasm by the people, though treated with sullen indifference by the priesthood. He distributed two hundred thousand francs and then hastened back to Florence, to his New Year's reception. The Pope was in the Vatican and the king among the people.

Yours truly, W. R. FORMATION OF A BAPTIST CHURCH.

A letter of a more recent date, from the same pen, appears in the National Baptist of March 2nd, 1871, and gives some further exceedingly interesting accounts of the united labors of the Revs. James Wall and Dr. Cote in the city of Rome. He says:—

God has blessed the labors of these devoted brethren greatly, and I rejoice to have been here to see them gather in the first fruits. On Sunday last, just after sunset, they retired to a quiet spot and baptized five rejoicing converts. It was an impressive scene. It was not thought best to make any demonstration. Prayer was offered while we knelt together, but it was in a low tone and no singing at all was ventured. Besides the candidates, the only persons present were the two administrators, two of the Italian brethren baptized before they came to Rome, and Dr. John A. Broadus, of South Carolina, and myself. None of us, I am sure, will ever forget the hour. There were three others who desired to be baptized, but could not then be present. So on Sunday morning we went to the same place at 10 o'clock, when they too received the holy rite.

After this, at 11, the usual service was held in the usual place, 26 Via della Croce, and at the close the first Gospel Church, since the Papal power gained its supremacy, was organized within the walls of Rome. It consists of fourteen members,—all men,—excepting the wives of the two missionaries. In saying this I do not mean to ignore those Churches which Protestant visitors have found so much pleasure in frequenting. I mean the American Episcopal Church, the two English Episcopal Churches, and the Scotch Presbyterian Church. But these all have services conducted in the English language only. They are visitors' Churches, and do not touch the native population. Besides they are all at Rome, not in it; for they are all outside the walls. The new Baptist Church is not only for Italians, but is composed of Italians, and is in the very heart of the city. After the organization was effected, brief addresses of congratulation and advice, translated into Italian by Mr. Wall, were made by Rev. Dr. Broadus and myself. We both also gave all the brethren of the new Church in our own name, and for the Baptists of America the right hand of fellowship. And they directed us to say to our American Brethren, that the "Brethren of Rome salute you." The Lord's Supper was then celebrated, and as there were a few present who profess to be converted, but have not been baptized, it was distinctly stated that according to the Second of Acts, which had been the Scripture lesson for the day, the Apostolic custom was after "baptism" to engage in "the breaking of bread," and that only those, therefore, who had been baptized were in a Scriptural way qualified for the ordinance of the supper. There were seventeen communicants,—the little Church of fourteen and three of us from America. Surely it was a day and a privilege never, never to be forgotten. Our prayer is that "the little one" may literally, and speedily become a thousand.

A PLEDGE.

We felt authorized to pledge the brethren the prayers of American Baptists.—They will call themselves,—for reasons which here seem sufficient,—"The Apostolic Church of Christ in Rome," but they are, I think, in all respects, one with us. They need the prayers not only of the Southern Baptists, whose mission it is, but of all who love our Lord in sincerity and

truth. They have legal toleration it is true, but they will meet with social intolerance. Annoyance and hardships they will be sure to encounter, and they have great need of our prayers that their "faith fail not."

PERSONAL.

I can only add a few words of a personal character. My health has been, as far as I can judge, completely re-established.—In this respect the benefit of rest and freedom from care has fully equalled,—perhaps I may say, surpassed my most sanguine expectations.

On Tuesday of next week, Rev. Dr. John A. Broadus and myself start for Egypt and Palestine. Drs. Boardman and Darby let here last week, and we hope again to meet them in Jerusalem.

WARREN RANDOLPH.

Jan 30, 1871.

CALIFORNIA, AS IT IS.

Our Maine contemporary the Zion's Advocate has had a series of letters from California. The following interesting account of the Christian work being done among the Chinese by the Baptists we extract therefrom:

Our denomination both in San Francisco and other parts of the State, are taking vigorous measures for the evangelization of the Chinese. The impression of our civilization, which John Chinaman has received from the courts and society in general in California has not been a very favorable one. The churches of all denominations are now trying to convince him that Jesus Christ loves him, and desires his conversion as much as that of the "melican" man. Many of the churches have Chinese Sabbath Schools, where instruction is given in our language and in the truths of the Bible. One peculiar feature of the schools is that they are wholly composed of men. I visited one school where nearly a hundred were assembled, and not a woman or child was seen among the number. The women in this country are few, and all these are of the most abandoned character. There are few families, and consequently few children. I think during my stay in California, I saw ten thousand Chinese, and out of this number I doubt if there were twenty children.

They are easily influenced to attend Sabbath Schools, and are much more easily reached than the Roman Catholic element in our population. Our Home Mission Society has a native preacher in its service, who is doing a grand work among his people. His name is Fung Seung Nain, and he is very acceptable as a preacher to his countrymen. No one hour of my trip was more enjoyable than that which I spent in his quarters. In a little room not more than eight by ten, Fung with another Christian Chinaman, cats, drinks and sleeps, and in that little place I heard both of these brethren speak of the love of Christ. Fung has but little knowledge of our language, but his friend speaks it quite fluently. The latter is employed in a photographic establishment and is considered one of the best workmen in the city. He acts as an interpreter for Fung, and in his leisure hours does some missionary work. On the Sabbath Fung sometimes preaches to a thousand of his people in the streets, and is listened to with the greatest respect. The method of salvation is the same as that preached in the evangelical pulpits of Boston or Portland, and the story which he tells, is the old, old story, of the Cross. We believe that the Southern Home Mission Society has an American missionary, Rev. Mr. Graves, who can preach to the Chinese in their own language. His services will be exceedingly valuable in mission work among this people. When in San Francisco it was proposed by the Home Mission Society to purchase the edifice of the first church, which is in the Chinese quarter of the city, and fit it up for a Chinese Mission house. The Methodists have already opened a fine station, and it is hoped that we shall not be behind other denominations, in the needed appliances for successful mission work among the Chinese.

The church architecture of San Francisco, is far inferior to that of many buildings used for other public purposes.—Standing on the highest point in the city, you look down upon a vast mass of buildings, the monotony of which remains unbroken by the many spires, which are so common in other cities. The frequency of earthquake shocks, prevents the erection of tall steeples, so that these graceful and at times imposing architectural features, are almost wholly wanting. In other parts of the State however, I saw some churches very similar in style to what

we have in the East. The finest church edifice is the Jewish synagogue on Sutler street. This has two short towers somewhat in the style of Mohammedan turrets, and is quite an imposing structure. The externals of the building are neither clean nor attractive, but within all is brilliant and inviting. A somewhat significant notice is posted near the inner door: "Children under six years of age not admitted." Christians frequently speak as if entrance to Christ's visible church should be confined to those who have reached a certain age, thus forgetting the Master's words, "Suffer little children to come unto me." This synagogue is arranged like a modern church, the Jews who worship there, being of the advanced class. Men and women sit together, and the general arrangements for Sabbath worship are very much like our own. Behind a rich curtain is a small square recess, the ark, where the books of the law are sacredly kept. This was about the only distinctive feature that I noticed in the entire edifice. There is a secular school in the basement, where many of the Jewish children are taught. Here as elsewhere the Jews are immensely rich, and have a controlling financial influence. There are two classes in the State, the German and Polish, the former of which are infected with the spirit of the age, while the latter still adhere to the old forms and ceremonies. Both classes are very benevolent toward their own people, and annually expend large sums in befriending the poor and destitute. The Presbyterians are quite strong in San Francisco, and have a few good edifices. Rev. Mr. Scudder of this denomination is considered the most popular preacher in the city. The Congregationalists are also quite strong, and have in their leading preacher Rev. A. L. Stone, a strong and acceptable preacher. His congregation will soon have one of the finest houses of worship in the city. The Unitarians have one church presided over by Rev. Horatio Stebbins, formerly of your city. He has a large and influential society, which has a wide and controlling power throughout the State. In conversation with Mr. Stebbins, he stated that his parish numbered very nearly if not quite five thousand persons. He is much beloved by his people, but I question if his settlement is to him personally, as pleasant as that in your city.

The Methodists have considerable strength and have the same aggressive spirit which characterizes them elsewhere. The other denominations, the Universalists excepted, have churches, and positions of greater or less influence. Only about one-tenth of the population attends any place of worship, and the Sabbath is practically a secular holiday. I preached in the First Baptist Church on the Sabbath preceding the 4th of July, and I was obliged to stop in my sermon several times, to allow the noise occasioned by fire crackers, guns, and so on to die away. Framing posters announced a grand excursion on Sunday, which would wind up with a still grander ball. Notices of all kinds of amusement were seen on every side, all uniting in a sad testimony to the general desecration of the day.—There is a Sabbath observance society, composed of all denominations, which have done much to restore quiet and peace to the day.

A few years since, the Sabbath laws were as rigid as with us, but at present there is only the mere shred of a law for the recognition of the day as one of rest. But while there is much on the surface that seems of a profane character, I doubt if many of the Western cities are inferior in point of average morality, to many in the East. We need however to learn the lesson of history, that God must have his day, or nations will die out because of its desecration, and its prostitution from its high mission of moral and spiritual good to the world.

Missionary Intelligence.

(From the Missionary Magazine.) SPAIN.

The news from Spain is of the most cheering character. A Spanish preacher,—and the most eloquent preacher in Spain,—has become fully convinced of the truth of Baptist sentiments, and about to be baptized. He is laboring in Madrid under the direction of Mr. Knapp. A young man of talent and promise has recently come from one of the Provinces, and applied for baptism, who reports that 500 believers in that region are waiting to receive the ordinance. Letters are frequently received from various quarters, making inquiries in regard to Baptist views. Mr. Terry, who has by