

In the ninth volume (1826) of the Medical Recorder, is an article taken from the Edinburgh Medical and Physical Journal, Oct., 1825, to which it was communicated by Dr. Magee, then Senior Physician to the Dublin Sick Poor Institution, which, I think, bears on the subject of which I am writing. The paper is entitled a "Case of Purpura Hæmorrhagica, *successfully* treated with Spirits of Turpentine." Its author says he was induced to try the remedy in subsequent cases from its efficacy in checking the hemorrhage of dysentery. He further says that, after this case he had "several cases of purpura which did not assume the hemorrhagic form, solely, I am persuaded, from the use of the turpentine." The case is of importance, and therefore worthy of perusal, whether the opinion of the writer as to mode of operation and manner of combination be adopted or not.

But the most important cases bearing on this subject, are cases 3d and 4th, recorded by Caleb B. Matthews, M.D., of Philadelphia, in the Med. Recorder, Vol. XIV., 1828. Case 3, after "repeated attacks" of intermittent fever of the tertian type, was suddenly seized with alarming hemorrhage throughout the whole mucous membrane. A similar case in the same family had a fatal issue, in which the turpentine had not been used. It was employed in this case, and recovery resulted. Case 4 was in the same family, and was a case of hemorrhage after protracted fever, cured by turpentine.

On the 118th page of Braithwaite's Retrospect, Vol XXII., will be found a very interesting paper on this subject, by Dr. Budd.

If you think these remarks will in any way subserve the purposes of that improvement which is the proposed object of the Society whose deliberations induced me to write, you are fully privileged to publish them in your very interesting and valuable weekly.

Knoxville, Tenn., January 28, 1852.

FRANK A. RAMSEY.

OBSERVATIONS ON THE VITALITY OF THE HEART OF THE SHARK.

[Made during a Passage from the United States to Burmah, on board the Ship
"Washington Allston."]

BY JOHN DAWSON, M.D., MISSIONARY PHYSICIAN TO BURMAH.

"INDIAN OCEAN," Dec. 18th, 1850. Lat. $0^{\circ} 35'$ south; long. $94^{\circ} 30'$ east. To-day we are just 35 miles distant from the equator, and about 250 miles from the western coast of Sumatra. The weather is sultry and warm. Thermometer stands at 83° in the cabin, and about 87° on the upper deck. Occasional showers fall upon the ship, and operating on the heat, tend somewhat to cool and refresh us. Quite a number of sharks of various sizes, and several dolphins, have been swimming and playing round the vessel during the greater part of the day. Three of the former were caught by a hook and line, armed with a bait, that was thrown over to take them. On opening these "inhabitants of the mighty deep," the hearts of two of them were removed from the body, for the purpose of experiment.

The question of irritability of the heart after death, in certain classes

of inferior animals, is no longer a subject of doubt among physiologists of the present day. The interesting case of the sturgeon, related in Prof. Dunglison's work on physiology, is well authenticated and to the point. Before noticing, however, the phenomenon of the heart's action in the shark, it might, perhaps, interest some of my professional brethren, if I attempt to describe in a few words the anatomy—the size and structure—of this particular organ in the animal under consideration. The creatures that were taken measured respectively 28 and 34 inches in length, and 16 to 24 inches in circumference round the position of the thorax. When made sensible that they are caught by the hauling in of the line, sharks seem to struggle, like most description of fish, very desperately, to break loose from the hook, but this, of course, only tends to make them the more secure. According to a nautical guess, for there is no means of correctly determining such a question, the two that were subjected to inspection, were considered to be between, the one 10 and 11, and the other 12 and 13 years old.

On examination, the heart appeared to be about the size of an ordinary walnut, and was found without the usual capsule, or pericardium, which is natural to and always noticed in the higher order of animals. As to the general question of size in the whole class or species, this must, of course, depend on the age and dimensions of the animal itself. The organ has but one auricle and one ventricle. The auricle reposes on its anterior and superior face, and bears, I imagine, the same relation as to texture, as the auricles do to the ventricles in the human subject, except that there may be seen a few more muscular fibres interwoven with the fibrous tissues than in the case of man. In the ventricle the fleshy walls were of uniform thickness throughout, a circumstance that is unlike the case of a heart, where there exists a right and a left ventricle, whose relative powers are different, from having unequal forces to exert, but in exact proportion to the office each fulfils in the economy. In this cavity, i. e., the ventricle, I could discover no valves, nor any arrangement which effected that object between the auricle and ventricle. The chordæ tendinæ were also wanting. At the opening into the aorta, there were three capsular bodies, each having a movable minute filamentous membrane covering it, performing evidently in that situation the office of valves.

As to the action of this important functional apparatus, I watched very closely its successive movements, without intermission, for more than an hour, and then at intervals till it became totally unaffected by manipulation. As a beautiful machine of nature, and taking the whole organ for our study, the first impulse proceeded invariably and regularly from above downwards—from the upper edge of the auricle, to the lower or most dependent part, or apex—the sides pressing, after the similitude of a wave, inwards with the progress of the contractile effort. Whilst this movement is advancing, the ventricle is relaxed and dilated. Then like a wave rolling onward, the expulsive action passes as quickly as can be from the auricle to the ventricle. After the latter contracts and becomes apparently empty, by the passage of a jet of the current through the aorta, there is an instant of repose. In this manner wave succeeds

wave, or, better, impulse succeeds impulse, with undeviating regularity and constancy. As the vis vitæ or nervous influence diminished, the beats, or pulsations in these experiments, became gradually less frequent, till they ceased, at the expiration of an hour, altogether. Subsequently, by the application of a foreign stimulus, such as the scratch of a needle or a knife, the organ would immediately respond, by an effort at contraction and dilatation. At the close of half an hour from the time of its ceasing to act voluntarily, or at the period of one hour and a half from its removal from the trunk, the susceptibility, or power to be stimulated to action, was completely lost. It then seemed to be dead inert matter.

In both instances the particulars and results were so nearly alike, that no separate notice of either of them seems to be here desirable.

From these experiments, then, so far as they go, conducted on two different occasions and with care, the fact is *once more* established, that the *inherent vitality*, nervous irritability or contractile power, or whatever term is preferred, by which it may be correctly designated, *continues in the heart* of sharks, for a longer or shorter period, varying from one to two hours, after the total extinction of life in the animal whence the organ was taken. Such, it may fairly be inferred, is the rule, though we may yet be made acquainted, by future observation, with some exceptions.

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Jarvis's Physiology and Johnston's Turner's Chemistry.—"Practical Physiology; or Anatomy and Physiology applied to Health. For the use of schools and families. By Edward Jarvis, M.D." "Elements of Chemistry, for the use of schools. By John Johnston, M.A." Published by Messrs. Thomas, Cowperthwait & Co., Philadelphia. We are indebted to D. Forbes, Esq., 131 Washington street, the New England agent of the publishers, for a copy of the above-named school books. The work by Dr. Jarvis has been examined with particular care, and we can unhesitatingly say that it is by far the best popular treatise on the science of physiology we have ever read. It is well adapted to instruct the student; while the purity of its language and its originality of expression cannot fail to interest all. Were such works as this more extensively read by the members of families, the physician's task would be much lighter, and infinitely more pleasant, when administering to them in sickness. The work on the Elements of Chemistry, by Mr. Johnston, comprehends everything that is requisite for the primary instruction of the student. It is well written, and easy to be understood; and to the lover of that enchanting and most brilliant of all the sciences, this book of Mr. Johnston's will serve as a pleasant pastime to while away his leisure hours.

Parisian Medical Society.—Allusion has been made in the Journal to an association of American physicians in Paris, lately organized. We are