framing a question about the first name or subject on the page. Such questions are a severe tax on a librarian's time and patience; but, if a reader comes in search of answers, he must be kindly received, and all the resources of the library placed at his disposal. A librarian needs a certain tact and skill in guessing at the wants of readers. This comes by practice, after one has learned to estimate the mind-power of the frequenters of a library. 'Can you give me something on the French revolution?' asks a young girl. Instead of offering Thiers, or Carlyle, or even the 'Epoch of history' volume, the librarian asks, 'How long an account do you wish, — one in several volumes?' — 'Oh, not very long, and not very deep, please.' — 'An historical novel, perhaps?' — 'Yes,' with a visible brightening of the face; and the reader goes home happy with 'Citoyenne Jacqueline,' perhaps to come back and ask for another novel of the same period, or even a history. It is, however, too much to expect that every reader who desires a little historical knowledge will go through a course of many-volumed books. The various lists of historical novels published by the Boston public library and other libraries, Professor Allen's 'Catalogue of novels and poems on English history,' and Adams's 'Manual of historical literature,' are every-day helps in even the smallest library. It is not hard for a librarian to make a list of the novels in his or her own library which illustrate different periods. A small library has this advantage over a large one, that it cannot afford to buy poor novels. Miss Hewins closed with a list of about seven hundred dollars' worth of books made for the beginning of a free library in a manufacturing and farming town, whose inhabitants are of average intelligence.

THE AGE OF ELECTRICITY.

IN the closing sentence of this book the author remarks that we are to-day entering upon the age of electricity; so that, in spite of its title, the volume must be regarded as a discussion of incidents in the world's history which were necessary and preliminary to its complete preparation for the phase of its existence which it is now about to take on. Now and then, throughout its nearly four hundred pages, prophetic glimpses are afforded of what this age may have in store for us, but in the main the author has confined himself to the safer ground of already accomplished fact.

The reader is carried from the 'myth of the amber-soul,' which is discoursed upon in the first chapter, to nearly the latest application filed in the patent office up to date; and, in a general way, the task of summarizing the vast amount of information which scattered itself with great irregularity along the centuries from the earliest of these dates to the latest has been well and satisfactorily performed.

The book is written in the interests of the general public, and is nearly free from technicalities, which are so often a bugbear to the general reader. While not especially intended for the student of electricity, it will prove to be a useful book of reference to many whose collections are limited, as it contains a good deal of historical information not otherwise accessible in a single volume. Considered in relation to the supposed demands of the general reader, the author has perhaps erred somewhat in often going into details which may serve to complicate rather than to simplify, and, in a few instances, in avoiding the discussion of an interesting subject because of its seeming difficulty.

Several inaccurate and misleading statements are found scattered through the book, which are all the more noticeable on account of its general excellence. Early in his discussion the author defines the units now commonly used in electrical measurement: but he has not been able to avoid confusion in their use subsequently, as when he states that the quantity of current necessary to decompose a grain of water is 3.13 ampères, and in other instances. Many readers will be astonished at the statement that the resistance of a battery-cell is in no way altered by increasing or diminishing the size of the plates. The assumption of the resistance of what the author continually calls a 'strange atmosphere' around the poles of a magnet, and in the neighborhood of a conductor conveying a current, in order to account for the phenomena of the magnetic field, would hardly seem to be warranted, even in a popular treatment of the subject.

In his historical references, the author is disposed to give due credit to American science and invention, although in his discussion of the induction coil he nowhere mentions the important contributions of Mr. E. L. Ritchie; and his treatment of contemporaneous discovery and invention does not seem to be quite free from prejudice and bias.

Notwithstanding these and some other faults, the book contains a vast amount of interesting information, presented in an interesting way, and it will doubtless find an appreciative audience. It presents a handsome appearance, and the numerous illustrations are generally appropriate adjuncts to the text. In the fine full-page cut, however, showing a man of war destroyed by a fish-torpedo,

The age of electricity. By PARK BENJAMIN. New York, *Scribner*, 1886. 12°.

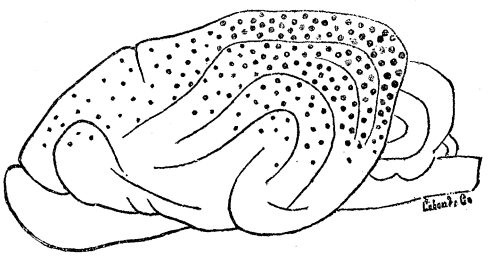
it is a little curious to see, that, while the great ship is certainly going to the bottom, the small torpedo-boat itself floats apparently uninjured.

LOCALIZATION OF FUNCTION IN THE CORTEX OF THE BRAIN.

A CONVENIENT summary of the main points that have been established by experiments on animals, by pathological records and anatomical research, regarding the relation of certain parts of the brain to the various senses and systems of muscles, is a very welcome contribution to this vexed question. If, in addition, the work brings new light on some of the problems, and a worthy appreciation of its predecessors, it is doubly welcome. The recent work of Dr. Luciani and Dr. Seppilli has these claims to our highest praise.

The view of Flourens, that all the parts of the brain were functionally equivalent, was followed, after the discovery of the excitability of the cortex in 1870, by the very opposite view that the brain consisted of a collection of areas definitely circumscribed, each of which had exclusive charge of a certain function. The view held by our authors, agreeing with that of Exner, Goltz, and others, is a mean between the two. The different parts of the cortex have very different relations to the several functions. But a centre is not a definitely limited area: it has a focus and a 'periphery,' but no hard and fast boundary-lines. The peripheries of the various centres overlap. Take the usual centre, for example. If you regard the sight-centre as all that part of the cortex the removal of which will cause disturbances of vision, then this centre is almost too extended to be localized at all; but, if you distinguish between transitory and permanent (though gradually decreasing) impairment of vision, the occipital lobe, with a small part of the adjoining parietal, is at once marked as the focus of the sight-centre: its 'periphery' extends in the direction of the frontal and temporal lobes. An injury to the peripheral portions will cause less severe and less permanent impairment of vision than injury to the focus.

The extensive destruction of one occipital lobe produces blindness in a small external segment of the retina on the same side, and in a large internal segment of the retina on the opposite side; i.e., each centre is connected with both sides of the body, but more with the opposite side. This furnishes a simple scheme of the decussation of fibres in the optic chiasma. The general results are compactly represented in a diagram of the dog's brain, in which the size and proximity of the dots show the 'intensity' of the different parts of the centre, while the shaded dots show the proportion of the centre connected with the same side of the body.



The accompanying diagram of the dog's brain shows the location and extent of the *visual centres*, as proved by the impairment of vision due to extirpation of this area. The occipital region, as indicated by the size and frequency of the dots, is most immediately connected with this function; but an area of minor intensity extends towards the frontal and parietal lobes. The shaded dots indicate (roughly) the part (a smaller one) of the centre connected with the retina of the same side; the others, the part (a larger one) connected with the opposite retina.

The centre for hearing has likewise a focus and a periphery, and the scheme of decussation would be quite the same. The focus is in the temporal lobe, with the periphery extending in the direction of the parietal and frontal lobes, of the hippocampus and cornu ammonis. The attempts at localizing the centres for smell and taste are less definite and less certain.

On the pathological side, the correlation of certain disorders with lesions of certain parts of the brain tends to the same results in the main, and thus makes the experimental evidence doubly important.

The central convolutions and the immediately adjoining parts of the parietal and frontal convolutions form the sensor-motor zone. It is the terminal station for the reception of skin and muscle impressions, as well as the origin of the voluntary control over certain muscles. The motor zone is directly excitable by electrical stimulation, and is the part the irritation of which produces epileptic spasms. A study of the order in which these spasms affect different groups of muscles, with a post-mortem examination of the brain, tends to a more definite localization of the facial centre, the arm-centre, and the leg-centre. The chapter on epilepsy, from the point of view of Hughlings-Jackson, is a valuable presentation of the subject.

Die functions-localisation auf der grosshirnrinde an thierexperimenten und klinischen fällen nachgewiesen. Von Dr. LUIGI LUCIANI und Dr. GIUSEPPE SEPPILLI. Autorisirte deutsche ausgabe von Dr. M. O. FRAENKEL. Lepzig, *Denicke*, 1886. 8°.