SCIENCE:

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SCIENCE AND MEDICINE.

A few words on the relation of the natural sciences to medicine, as one of the greatest aids for the achievement of success, should be welcome reading to all members of the medical profession whose aspirations are above the dead level of mediocrity.

The physician may at first sight desire to stifle all discussion on this point by saying, that the requirements of study involved in acquiring a knowledge of medical practice *per se* occupy too much of his time to admit of his taking up outside issues, which he considers mere refinements of practice. There are others who take the absurd view that, to add a knowledge of the natural sciences is to become in the highest sense of the word a Chemist, a Physicist, or a Biologist. Seeing that the attainment of a complete knowledge of either of these sciences, is a work of a life time, it is argued, that they are to be shunned as impossibilities.

The path of the would-be scientific medical man is made clear by the encouraging words of one of his own profession, Dr. G. Vivian Poore, M.R.C.P., who says, there is a minimum of knowledge in this respect which is sufficient to endow the physician with a *scientific grasp of his art.* What is really wanted, is sufficient knowledge to enable a medical man to read these various sciences with intelligible results for himself, *when he needs* and as often as he desires to consult them, to show him as objectively as possible, those great principles which have already found application in his healing art. This will lead him to think and enable him to act with precision in any great emergency.

Let it be understood that there is no necessity for cramming the head with a mass of details, and that our object is to enrich and not encumber the mind of the medical practitioner.

To those who are ignorant of the advantages of some knowledge of the natural sciences in medical practices, the following observations of Dr. Poore may be read with interest.

"There are those who hold that the student of medicine has but little need of special training in the natural sciences, but such a position I believe to be untenable, and if I have to say one thing more emphatically than another to the first year's students, it is to advise them, not on any account to neglect their purely scientific studies. They are the very foundation of your professional knowledge, and without a solid foundation, no firm or worthy superstructure can be raised.

How can a man hope to rightly comprehend that most complicated of all machines, the human body, with its levers, pumps,and elastic canals, unless he be first furnished with the principles of mechanics and hydraulics? Who will say that a proper knowledge of the eye, or of the many optical instruments used in medicine, is attainable without some acquaintance with the laws of light; or that the intricacies of the ear, and the art of auscultation can at all be understood by him, who knows nothing of the laws of sound. The laws of heat must be studied in order to appreciate the difficult problems afforded by the animal temperature, its variations in health and disease, and the means of influencing it by therapeutic agents. Without the principles of chemistry we should be intellectually lost in the human laboratory, and unable to employ chemical agencies in the treatment of disease; and electricity is so correlated with the other physical sciences, and of so much service both in diagnosis and treatment, that its separate study has also become essential. Neither can we altogether neglect geology and meteorology, since conditions of soil and atmosphere are now recognized as important factors in the causation and relief of suffering.

It is scarcely necessary to insist on a knowledge of those sciences which are called "biological." *Anatomy* and *Histology*, formerly the mere handmaids of medicine, but now recognized as sciences worthy of independent study, are as necessary to us as is a chart to the navigator; while *Physiology*, which teaches us the use and mode of action of the anatomical and histological elements, is the medical practitioner.

Zoology and botany are not so absolutely necessary for us as are the other sciences, but it is evident that they are very necessary as preliminary studies for the biologist, to whom we look for instruction, for without a study of the simple forms and conditions of life a proper understanding of human anatomy and physiology is not attainable, and in so far as they teach us the conditions of existence of the various vegetable and animal parasites which affect the human body, from micrococci upwards, they are necessary for us as *surgeons and physicians.* This list of sciences is truly formidable, but I nevertheless assert that there can be no true study of medicine without a knowledge of the principles of all of them; and, for my own part, I have never had any difficulty, as a teacher of clinical medicine, in discriminating easily, by a perusal of their clinical reports, between those students who have, and those who have not, had an insight into the principles of pure science.

Scientific principles are to the physician and surgeon what the sextant and compass are to the navigator. Without them he cannot rise above the rank of a lighterman or a ferryman, but must be content to remain a mere "pill-monger," or a chirurgeon of a base mechanic sort. With them he may fearlessly launch his bark upon unknown seas, and may have the good fortune to extend the frontiers of science, or discover, as it were, new continents, to give a wider scope to the art which he professes.'

To the medical man who would reap the advantages held out by Dr. Poore, *we confidently suggest the value of this journal* as a means of accomplishing the ends desired, at the least cost, and most convenient form. The impecunious can thus avoid the purchase of the mass of scientific literature with which the market is flooded, and the overworked practitioner receiving the journal weekly is not embarrassed by redundancy, and yet can safely rely on passing nothing of importance, while articles of special interest to the profession will be constantly brought before his notice.

In the previous numbers of "SCIENCE" may be found valuable articles by Professors Burt G. Wilder and Sage, of Cornell; Drs. Hammond and Spitzka, of New York; Dr. Clemenger, of Chicago; Dr. J. A. Mason, of Newport, and many other specialists of equal merit.

Now the value of a knowledge of science, as a means of "getting on" as Huxley terms it, is indubitable, and while there are few trades in which some knowledge of *science* may not be profitably applied to the pursuer of his occupation, we think that the words of Dr. Poore must carry conviction, that the *student* or Physician who would attain the higher stages of development of his art, must be kept "*au courant*" with such facts and principles, which are weekly published in "SCIENCE," for they will probably find their application in every intelligible diagnosis and discussion on medical practice.

"SCIENCE," November 5th, 1881.

WE learn with regret that Dr. Ed. C. Spitzka, who has been requested to appear in the Guiteau case, by both the Government prosecutor and counsel for the defence, has declined to attend.

The question of mal-practice is not likely to be seriously entertained at the trial, and the whole issue will probably rest upon the evidence touching the insanity of the prisoner.

We should judge from the published papers of Dr. Spitzka that his evidence would be in favor of the prisoner's insanity; it becomes, therefore, the more important that he should attend, as it would avoid the suspicion, in case of conviction, that the assassin had not received a fair trial.

NEW YORK ACADEMY OF SCIENCES.*

October 3, 1881.

REGULAR BUSINESS MEETING.

Vice-president Dr. B. N. Martin in the Chair.

Twenty-five members present.

After the transaction of business, the members were invited, in accordance with the usual custom at the first meeting of the season, to present notes and observations gathered during the summer, and responses were made by Mrs. E. A. Smith, Prof. C. A. Seeley, and others.

Mr. W. L. Chamberlain referred to the gold deposits recently opened in Fulton and Saratoga counties, N. Y. The ore consists of auriferous pyrites and is contained in the gneiss of the foothills of the Adirondacks.

* Official Report.

Remarks were made, by a member, on a visit to the sandstone quarries at Portland, Conn.: by Mr. Todd, on a peculiar atmospheric phenomenon, a vaporous band stretching across the sky, apparently not auroral, observed in the Adirondacks: and by Dr. Martin, on a remarkable atmospheric coloration, luminous brilliance of the clouds, etc. observed last month at Saratoga, in the early morning, attributing it to an abundance of a smoky fog produced by the recent forest fires, and calling attention to the fact that this phenomenon has been noticed only in the territory east of the meridian of Saratoga.

Mrs. P. Hanaford described the same appearances as seen during the "Yellow Day" Sept. 6, near Boston, and also on Nantucket: another member, as seen in the Genesee valley, explaining that the strong West and Northwest winds prevailing at the time had wafted high in the air vast volumes of smoke derived from the abundant forest fires throughout Western N. Y.: Messrs. Todd, Chamberlain, and others, describing the electric brilliance of the gas-lights, the strange modification of the green color of foliage, the absence of smoky odor, etc., as observed at Great Barrington, Mass., and in less degree in New York city: Mr. N. L. Britton, on the same facts as observed out at sea, off Fire Island and Montauk Point, Long Island, N. Y.: Prof. D. S. Martin, as observed between Saratoga and Catskill, N. Y., and Prof C. A. Seeley, calling attention to the extremely attenuated character of the carbon particles, produced by their long transportation from distant localities.

Mr. Geo. F. Kunz mentioned that Mt. Mica, at Paris, Maine, the locality so famous for colored Tourmalines for the last fifty years, had been purchased by a Mining Company and was being worked for Cassitterite, Mica and Tourmaline, principally through the efforts of Dr. A. C. Hamlin of Bangor, Maine.

Dr. Hamlin has the finest known collection of American Tourmaline, and he recently reported the finding of a crystal three inches long and one-half inch thick, a transparent gem, of a beautiful blue-green color. This was taken from the new mine, and many more remarkable specimens may be expected as the work advances.

Mr. Kunz said that during the last year a German Agate-hunter returned to his native country after 20 years collecting in Brazil, taking with him a large suite of fine colored Tourmalines, some five inches long and not more than one-eighth of an inch thick, transparent, and of a green color; also many fine green crystals with red, yellow, white, and other colored centres, many of these equalling for variety of color anything yet found, most of which will cut as gems. There is also in this lot one exceptionally fine green crystal over one inch square. This collector brought with him also at least 1000 kilos of transparent yellow Spodumene, the same as that described by A. Pisani of Paris some eighteen months ago, and is dissimilar only in color to the new variety of Spodumene found at Stony Point, North Carolina, described in the February number of the *American Journal of Science* for 1881, by Dr. J. Lawrence Smith, as Hiddenite. Some of the specimens which he brought will cut as fine yellow gems. All these were found in the Minas Geraes district. Recently a new locality for Chrysoberyl has been found in Ceylon, where they occur of gem value in an unusual variety of color. They vary in color from yellow to brown, and from brown to green. The latter color is the variety known as Alexandrite. This gem has heretofore been found but of very inferior size and color, but here it occurs of remarkable size, having in one case afforded a gem weighing 26 kts. They are a beautiful green color by day and a Columbine red, or brownish red, by night. The Chrysoberyl Cat's Eye is found here of the same color, and possessing the same dichroic property as the Alexandrite, viz., changing color, from green to red, and hence might very properly be called an Alexandrite Cat's Eye. Many of the Chrysoberyls are erroneously called and sold as a variety of sapphire.