carry a line of goods known as "druggists' sundries" and "patent medicines." These, and more especially the latter, he would give up if he could, but the line of competition is so great and the public still expect the pharmacist to carry any-and-everything to suit their convenience, that it seems only practicable to a very few to abandon these in their business. The public also expect the pharmacist to know something of everything, and whatever it be, whether ills or troubles or discomforts of any kind, they run to him. I remember, when attending college, one of the professors, who was a practising pharmacist for a number of years in one of the best localities in a large city, telling us that one night he was hastily summoned by a neighbor to his house, where, in the midst of a splendid reception, the gas had suddenly gone out, and, not knowing what to do, they sent for the pharmicist. He went, and being of a practical mind and true to the instincts of his discomforted neighbor, he remedied the trouble. This simply illustrates the very close relations of the pharmacist to the public.

Now, as soon as the public will expect the pharmacist to deal in medicines only and all other articles related to the art of medicine, then the pharmacist as a business man (which he must be) will confine himself to the labors of his profession. And as soon as he can confine himself solely to the art of pharmacy as taught in our colleges, there will be no question of an extended curriculum of studies, as complete as that of any institution of learning. Then we shall have laboratories fully equipped in the particular kind of analytical and chemical apparatus which he needs for the assay of drugs and in their examination for purity. Likewise will the course in microscopical work be so extended that the pharmacist will make such analyses, for the busy physician, as the examination of urinary sediments and other discharges, such as sputum for tubercle-bacilli, etc. Indeed, it is in these two fields that the advanced work in pharmacy is tending, and accurate results will only be attained by thorough instruction in chemical and microscopical manipulation. There must be such a blending of chemical and botanical instruction that the pharmacist, while not a specialist as a chemist or a botanist, yet indeed is a specialist with regards to the practical application of these sciences as an aid to the physician in his healing art and in the preparation of pure medicines of definite and authorized strength. This condition of specialization will come, for pharmacists are marching onward in the line of progress; and it is only a question of a few years, when the host of young men, graduating by the hundreds from our colleges of pharmacy, and who are thirsting to apply their teachings and make their living in this practical application, will unite and raise the standard of their business to the profession which it is theirs to make it.

THE TELL EL-AMARNA TABLETS.

BY THE REV. THOMAS HARRISON, F.R G.S., MEMBER OF THE SOCIETY OF BIBLICAL ARCHÆOLOGY, AND SENIOR LECTURER TO THE PALESTINE EXPLORATION FUND, STAPLEHURST, KENT, ENGLAND.

THE Tell el-Amarna tablets, after some years of patient study on the part of experts, are now known to consist for the most part of a political correspondence of great interest and importance between kings, governors, and officers, who formed their plans, struggled with their difficulties, fought their battles, and made their exit from the worry and work of life 3,370 years ago. These letters are inscribed on brick tablets, and, as a rule, occupy both sides of the tablet. With two exceptions, which are from Hittite princes and in their language, the letters are written in an ancient form of the cuneiform script. They were found in the year 1887 by an Egyptian peasant woman amid the ruins of the palace of Amenophis IV., or Khu-en-Aten, at a place now known as Tell el-Amarna, midway between Minieh and Assiout, on the eastern bank of the Nile, about 180 miles by river south of Cairo. The tablets number 320. The writers of the letters from Palestine (178 in number) are Amorites, Phœnicians, Philistines, and others, and they are addressed to the Pharaoh of Egypt and certain of his officials. At the time of this correspondence (about 1480 B.C.) the power of Egypt was waning and Egyptian garrisons were being withdrawn from Palestine in face of successful attacks by the kings of Armenia, Nii, Shinar, with the Hittites of Merash and Kadesh on the north, and of equally successful attacks by the *Abiri* (Hebrews) on the south. The letters state that the Abiri came from the desert and Mount Seir. Major Conder affirms that "the date of the letters is exactly that which is to be derived from the Bible (I. Kings vi., 1) for the Hebrew invasion, according to the Hebrew and Vulgate text, and it agrees with the fact that the Egyptian conquests made by the XVIII. dynasty (1700 to 1600 B.C.) had been lost when the XIX. dynasty acceded." It is certainly very interesting to find in the letters the names of Japhia (Josh. x., 3, one of the kings killed by Joshua) and most probably that of Adonizedek, king of Jerusalem; while the name of a king of Hazor is read as Jabin (Josh. xi., 1). It is also pointed out that the name of the captain of Jabin's host is, Egyptian, Sisera or Ses-Ra, meaning servant of Ra.

In most of the letters from the kings of the cities of Phœnicia and Northern and Southern Palestine the appeal is ever one for Egyptian troops to enable them to hold their cities for the Pharaoh, to whom they seem to have appealed in vain. The earlier letters of brave Ribadda, the king of Gebal (now Jubeil, north of Beyrout), usually begin with the following salutation, which is given as a specimen of such salutations at that time, "Ribadda of the city of Gebal of his Lord, the King of many lands, the prosperous king, Baalath of Gebal, she hath given power to the King my Lord. At the feet of the King my Lord, my Sun seven times seven times I bow."

The salutation of the later letters becomes shorter and less ceremonious, as Ribadda felt that he was being left to his fate. Here is one of his appeals for help: "I have been hard pushed. Help speedily O King my Lord. . . . Soldiers and chariots, and you will strengthen the chief city of the King my Lord."

And what can be more pathetic than this, coming from that same brave heart, which has now for more than 3,300 years ceased to trouble itself about chariots, and men of war and Pharaohs who could not or would not come to his aid.

"And will not my Lord hear the message of his servant? Men of the city of Gebal, and my child, and a wife whom I loved, this son of war, the son of Abdasherah has seized; and we have made a gathering, we have searched; and I cannot hear a word spoken about them. I am doing my duty to the King my Lord, and once more, despatch thou men of garrison, men of war, for thy servant, and will you not defend the city of the King my Lord?"

On May 14, 1892, a cuneiform tablet was found by Mr. Bliss while excavating at the old Amorite city of Lachish, in Judea, in which the name Zimridi twice occurs. From the Tell el-Amarna tablets we learn that Zimridi was governor of Lachish, and, moreover, in a tablet from the king of Jerusalem to Amenophis IV., we are informed of the death of Zimridi at the hands of the servants of the Pharaoh just named.

Many matters of great interest in connection with these tablets can find no mention within the limits of this paper. It may be added, however, that the topographical value of these letters is very great; and also that the evidence which they afford as to the Hebrew conquest of Palestine under Joshua is in favor of the Bible chronology (Acts xiii., 20; I. Kings vi., 1) and against that of Dr. Brugsch and Bunsen.

SOME CONFLICTING ESTIMATES OF DISTANCE.

BY ARTHUR E. BOSTWICK, PH.D., MONTCLAIR, N. J.

ACCORDING to all authorities with which I am familiar, a small, regular pattern, if looked at squintingly, so that the horopter is nearer the eye than the pattern, but at such a distance that adjacent corresponding parts of the latter overlap and coalesce, should appear closer to the observer, and if looked at in like manner, but so that the horopter is farther from the eye than the pattern, it should appear farther away. This seems natural, for, in each case, the image on the retina being unblurred, the point to which the axes of the eyes converge should be taken as the distance of the object. In this case, the angle actually subtended by the pattern remaining the same, the mind should infer, in the

first case, that the pattern has grown smaller, and, in the second case, that it has grown larger.

The writer of this note has never been able to make things appear to him in this way. When the horopter is nearer than the object, the pattern, though it appears smaller, seems also distinctly more distant, and when the horopter is farther away, the pattern seems larger and nearer. When one has learned the trick of causing the adjacent parts of the pattern to overlap and coalesce perfectly, the experiment may be tried as often as one likes, and I have tried it often and under many different conditions, always with the same result. Of course, care has always been taken to make sure of the point at which the axes of the eyes converge, either by converging them at first on the tip of the finger and then removing it, or by moving the finger to and fro in the field of vision after the eyes have become fixed, the separate images becoming closer together or farther apart, according as the finger approaches or recedes from the horopter. The fact is, as is well known, that an estimate of an object's distance is always an inference from various data furnished by the eye, as the visual angle, the position of the horopter, and the muscular movement in each separate eye necessary to effect accommodation. For distant objects the last mentioned fails, and aërial perspective comes in to aid; but for objects that can be used in this experiment the three factors mentioned are those on which the eye relies. The conditions in the experiment being unique, the data obtained are discordant, and it is not wonderful that different persons, under the circumstances, disagree in their estimates of the distance of the pattern.

Take the case where the eyes are squinted. The pattern being seen clearly, and no accommodation being necessary, each eye separately infers that the object has remained stationary. The horopter having advanced, the two eyes jointly agree that the pattern is nearer. But, if it is nearer, the angle it subtends remaining the same, the pattern must be actually smaller. But, on the contrary, no accommodation for bringing it nearer has been necessary, so, if it is smaller, that must be an apparent effect due to its having moved back. The conclusion to which one comes must be influenced by the relative weight that he is unconsciously accustomed to give to the different data on which his estimate of a distance is ordinarily based. And having interpreted the phenomena in one particular way at first sight, this becomes habit, and what may have been determined by chance the first time one tries the experiment becomes a settled thing. Often as I have tried it, however, I am always conscious of a queer feeling of surprise as the pattern comes out clearly before me — a feeling that all is not quite right, due, of course, to the unconscious clashing of these contradictory data. I may add that in my own case, and I suppose in that of others, in monocular vision an object appears distant or near as the eye is fixed respectively on something nearer than it or something beyond it. As accommodation is associated always with concentration of the axes of the eyes, it is doubtless impossible to accommodate the focus perfectly to the pattern while the horopter is in a different plane, hence, as in the case of the writer, this may tip the balance in favor of his peculiar way of inferring from the clashing data.

NOTES AND NEWS.

ALL lovers of ferns will be glad to learn that an association for the study of these plants by correspondence has been formed. The work will be made as easy as possible for beginners, and all who are interested in ferns are invited to join. Applications should be made to the secretary, Miss A. May Walter, 516 Spruce Street, Scranton, Penn., or to Willard N. Clute, Binghamton, N.Y.

— Professor Daniel G. Brinton, M.D., LL.D., of Philadelphia, received on May 10 the further honorary degree of "Doctor of Science" from the University of Pennsylvania. His works are numerous, and have been principally upon linguistics, ethnology, and American archæology.

— The Chicago Academy of Sciences has undertaken the collection of views from all localities in Illinois, and adjacent parts of Indiana, Michigan, and Wisconsin, for the purpose of bringing together, where they may be accessible to all scientific workers, a complete series illustrative of the geological and natural history features of the region. The value of such a collection is apparent, and the Academy believes that, in the interest of science, it may reasonably expect the coöperation of all who may be in a position to assist in the work. While all views are acceptable, those illustrating the following features are especially desired: geology, topography, land, water, and forest scenes, farm life, public buildings, neighborhood characteristics, and, in general, anything characteristic or unique in the study of nature or man. In sending views, please observe the following directions: 1. Send photographs unmounted. 2. Send with each a careful description of (*a*) the locality, (*b*) objects shown, (*c*) direction of view, (*d*) by whom taken. Number descriptions and views to correspond.

— A meeting of the Victoria Institute was held at Adelphi Terrace on May 1, at which an address by Professor Maspero, embodying the results of his investigations during the past ten years as regards the places in Southern Palestine claimed, according to the Karnac records, to have been captured by the Egyptians in the campaign under Sheshonq (Shishak) against Rehoboam. M. Maspero pointed out the great help that the recent survey of Palestine had been in determining the localities referred to, and specially referred to the fact that the Egyptian letters, rigorously transcribed in Hebrew letters, gave almost everywhere the regular Hebrew forms in the Bible, "without change or correction." The paper was admirably read in the author's absence by Mr. Theo. G. Pinches of the British Museum, who afterwards added some remarks. The discussion was continued by several members, including Major Conder, R.E., who contributed many interesting details. During the discussion reference was made to the great interest taken in the question by the late Canon Liddon, who, on the occasion of Professor Maspero's former paper being read, pointed out that the identity of form of the words in the Egyptian and Biblical records pointed to the antiquity of the latter.

— Morris Phillips & Co. have issued a new edition for 1893 of "Abroad and at Home." This book is a guide of an unusual character, giving much information in regard to hotels, boarding-houses, restaurants, etc., of considerable value to those who intend to go abroad, or who intend to travel in this country. Last year, the book first appeared early in the summer, and during the three summer months three editions were called for. This year, new matter has been inserted descriptive of Atlantic City, Niagara Falls, the St. Lawrence, Adirondacks, and Saratoga Springs, and a summer-resort guide giving information regarding the leading hotels. A specially prepared chapter on Chicago also appears.

— "Miss Helen Keller, who may be regarded as the most remarkable person in this country when her natural deficiencies [blind and deaf] are compared with her graces and gifts," says *The Evening Star* of Washington, of May 11, "is now a guest at the house of Mr. Alexander Graham Bell in this city. Last evening a number of well-known gentlemen were also his guests and had an opportunity to see how extraordinary is the intelligence of this young lady and how more marvelous is her power of expression, not only by manual signs, but also by distinct and agreeable oral utterances. Among the guests was Senator Sherman. Professor Bell said to Helen: 'This is the birthday of Senator Sherman and we are going to drink his health. We want you to propose a toast. Do you know what that means?' As this was a new idea to the young lady it was explained to her. 'We want you to propose a sentiment in honor of this birthday,' said Professor Bell. Helen looked puzzled or thoughtful for a minute and then said slowly and with a sympathetic emphasis: 'I propose his health, happiness and prosperity. May he be as helpful to his country in the future as he has been in the past, and may he be blessed with all good things in this life and in the beautiful life to come.' During the evening the quickness and fitness of her answers to Professor Newcomb and other scientific gentlemen surprised everybody. So did her accurate repetition of Longfellow's Psalm of Life, and so did her keen enjoyment of stories told to her and of the conundrums with which she puzzled the friends who were talking with her. Her story is wonderful, and the skill of her teacher, Miss Sullivan, is admirable in the