first-born of the wise-men of old pronounced the great deep to be at once the womb and the grave, the beginning and the end of all created things!" "This conception of one aboriginal source of all visible things is a scientific statement of the poetic myth which pictures Proteus as the solitary and God-begotten shepherd, eternally driving innumerable herds and flocks of all kinds of creatures before him." The idea is as old as the hills and as new as this moment. It is a part of us. It came down in a modified form from the Grecians to the Arabian Alchemists of the eighth and following centuries. It suggested to them the possibility of transmuting baser metals into gold and silver, and this led them on the path to an accurate metallurgy. They saw how the vernal showers renewed the youth of the grass, trees, and flowers; and they imagined a more subtle liquid, a fiery essential elixir, which should give eternal youth to mankind. With this thought to lead them on they wrought at the discovery and preparation of medicines, and pharmacy was founded. It must not be supposed that every chemical operation conducted by these alchemists had for its aim the discovery of the elixir vitae or the philosopher's stone. They believed in these substances and hoped that they might be discovered. "They toiled away at the art of making many medicines out of the various mixtures and reactions of the few chemicals at their command. They were a race of hard-working, scientific artisans, with their pestles and mortars, their crucibles and furnaces, their alembics and aludels, their vessels for infusion, for decoction, for cohobation, sublimation, fixation, lixiviation, filtration, precipitation, coagulation, and botherations of every sort. Many a new body they found; many a useful process they invented; many a good thing they did." Adapting from Dr. Brown "the chief and remarkable difference between these excellent Arabian doctors and modern followers of the art of Galen consisted perhaps, in the circumstance, that they had a kind of scientific religion over their sweating heads. They believed in the transmutation, in the first matter, and in the correspondence of the metals with the planets, to say nothing of potable gold; whereas their modern counterparts see through every species of humbug liver-pads, electric belts, St. Joseph's Oil, spirometers, *et hoc genus omne*.

The labours of the Alchemists were not always appreciated by the initiated of their own time, nor even by those of later times. The earliest of the Arabian Alchemists of whom we have a record is Geber who wrote the treatise "Summa Perfectionis"—the Height of Perfection,—which treatise, however, was so little intelligible to later readers that, according to Dr. Johnson, the name of its author has become a term of reproach in the word *Gibberish*.

Still it is evident from the records of the Mahommedan dynasties of the eighth and following centuries that

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(and along with it pharmacy) was a popular study. We read that the Caliph Almanzor founded a *medical college* in the city of Bagdad, and that this college became so celebrated that it drew within its courts as many as six thousand students. Extensive laboratories were fitted up and in these the students were taught the art of preparing medicines. From that time onward the infant science of chemistry was considered as part of that of medicine, and it is only in later days that it has been erected into a separate and self-sustained science. In the old days the physicians were often the best educated men of their time. The amount of study and travel necessary for the education of a good physician in the middle ages would appeal any modern candidate for the doctor's degree in medicine. They thought themselves ill-prepared to experiment on their fellow creatures until they had studied all sciences kindred to that of medicine. To do this to the best advantage they were obliged to travel over all Europe and often a part of Asia. But that was nothing to these ardent seekers of truth. Would that this spirit of study and research were more common in our day and among our doctors! It was groping in the dark for Geber, Avicenna, Albertus Magnus, Basil Valentine, and their successors, but they did a great work. Their zeal advancing their science was untiring. The Moors brought alchemy with them into Spain, whence it spread over civilized Europe. Returning crusaders also brought among their strange treasures this strangest of arts Some of the most ardent students of alchemy in later days were found in Germany and Holland. Grotesque, weird figures they were, for the most part a race of brawny inquisitors of nature, inspired by ideas great enough to enable them to live aside from the world, if not above it, on the one hand, and to do a good day's work for the world, on the other. From Roger Bacon of the 13th century to Paracelsus of the 16th, these European alchemists wrought, until the half-mystical alchemy became the matter-of-fact chemistry. After the time of Paracelsus, who died in 1541, alchemists separated into two classes, or rather there were no true alchemists, Paracelsus being the last of that hard-working, nature-torturing, mystery-loving race. Henceforward the loyal followers after truth relegated the mysteries to the far off, fast disappearing cloud-land into which they, not often, gazed with regretful longing, but only for a moment. The Elixir of life and the Philosopher's stone became to them as the fairy tales of childhood, and who does not regret his loss of faith in fairies, gnomes, kelpies and brownies? Alchemy became chemistry, and this science was cultivated, most assiduously by physicians as a means of increasing the number and efficiency of their weapons against disease and death. But there were still pseudo alchemists who used the art in order to impose on the credulity of the ignorant. They were men who moved about Europe with the philosopher's stone in their pockets and yet (*mirabile dictu*!), they remained poor and disreputable-looking. They were willing to sell their great secret for a few pounds, and found people dense enough to buy the receipt for making gold, not asking themselves why the chemists did not *use* their receipt instead of *selling* it. There are many modern representatives of these imposters and their dupes. It is needless to mention them. Roger Bacon was the greatest of the alchemists. His enlightened genius enabled him to see far in advance of his generation. He studied in Oxford and then in Paris. His education was encyclopaedic. Thomson, in his "History of Chemistry," tells us that he was a great linguist, familiar with Latin, Greek, Hebrew and Arabic. He was also a grammarian; was well versed in the theory and practice of perspective; he understood the uses of convex and concave glasses, and the art of making them. The camera obscura, burning glasses, and the powers of the telescope were known to him. He was well versed in geography and astronomy. He knew the great error in the Julian calendar, assigned the cause and proposed the remedy. He understood chronology well, was a skilful physician, and an able mathematician, logician, metaphysician and theologian. Add to these his love for chemical experiments and I have no doubt you will sympathize with his fellow friars who, according to one historian, attempted to poison him. Doubtless they concluded that if they did not poison him, he would in the end poison them. But in all soberness, the good Friar Bacon was

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The power over nature which his knowledge of experimental physics enabled him to exercise brought down on him accusations of magic, necromancy, and other absurdities,