The Practical Use of Chemical Symbols in the Pharmacy.

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QUERY No. 50.—Would not chemical symbols in addition to the officinal titles be advantageous on the labels of shelf bottles?

It needs little argument to establish the affirmative of this proposition; the advantages of the innovation appear on the surface.

It is important, not only to know what is contained in the bottles, but also what is contained in the contents. The ordinary labels tell the one; the chemical formulæ the other. Our very familiarity with the former tends to place the knowledge of the latter so far in the background that it is, if not forgotten, so lost to view as to be practically but a shadowy reminiscence. It would be startling, doubtless, if accurate statistics were obtainable, to know how few of those who are engaged in manipulating chemicals daily, are able to tell on the moment, or perhaps after study, the chemical constitution of substances. If all the pharmacists in this country who are reckoned competent were drawn up into line, after counting out the recent graduates from the schools and those who make chemistry a specialty, perhaps not one in a hundred could hold up his hand if a question involving this information was suddenly propounded, and yet the importance of knowing not only *what* these chemicals are, but *of* what they are, is too patent to need discussion, since *what* they are depends upon *whence they came*, and we can never be said to know the one until we have traced the other to its last analysis.

The chemical formula not only indicates the ultimate sources of the substance, and the relative proportion in which they have combined to form it, but it presents to the mind a picture of the mystical union which serves to impress us with an idea of its true nature; and if the picture be constantly before the eye, the impression will also be constantly upon the mind.

The advantage of having these formulæ upon the containers of chemicals begins with the beginner and runs through to the end of the term, gathering force the while. The attention of the apprentice when he first enters the store is naturally drawn to the mysterious hieroglyphics upon the shelf bottles. To the uninitiated these are indeed a mystery, and when the opportunity is offered, the novitiate seizes it with avidity and a zealous desire to solve it, and the impressions made upon an ardent mind are never erased. As his eye glances over the glittering array of gilt labels, it lights, it may be, upon the words "Pot. Brom.," which upon enquiry he ascertains to be an abbreviation of the Latin words "potassii bromidum;" in English, bromide of potassium, or as he may know it better, bromide of potash. As this is a chemical with which he may be somewhat acquainted, he perhaps concludes that he now knows all about it, and it is not impossible that he might have finished his career with knowing little more, if a second look had not revealed another still more mysterious sign—"KBr." His curiosity is still further aroused to fathom its meaning. He is told that it is a chemical symbol which shows the origin of the substance; that "K" stands for kalium, another name for potassium, and "Br." for bromine, and together they mean that one equivalent of each have combined together to form the crystals before him. Near by he sees another name, "Pot. Iod." or "Iodid." His previously acquired knowledge tells him that this must be another member of the potassium or kalium family, and his further investigations inform him that it is the iodide, and that the characters "KI" means that it comes from kalium and iodine. Of course his mind can by no means grasp the whole, nor indeed more than a mere glimpse of the truth; but a picture in outline has been photographed upon his memory which will never be obliterated, and in after years when he comes to take up the chemistry of the subject and study the nature of the subtle force which steals the atoms from one substance and attaches them to another, it will be but the filling in of the outlines; at least, through all his after life, there will be associated with the names of the chemicals he handles, not only the scource from whence they came, but a vision of the process by which they were moulded together.

The usefulness of the contemplated addition to the inscription on labels is not exhausted by its application to the beginner as an educational force; the educated and experienced pharmacist cannot afford to lose sight of the truths taught by these chemical symbols, as he is apt to do if the object lesson is not constantly before his eyes. Familiarity not only "breeds contempt," but often forgetfulness, and the very fact that it is possible to conduct the various pharmaceutical manipulations without calling to mind each time the elemental constituents which make up the substances acted upon, even assuming that they had once been familiar to him, causes them to fade from his memory, so that he often gets into trouble through some unexpected chemical reaction for which he is at a loss to account and for which he *cannot* account until he stops to recall, or refers to his books to hunt up that which should have been uppermost in his mind when the experiment was attempted. Even in the simple chemcals before alluded to, what an important figure do the little characters "Br" and "I" cut; how prominently do they stand out as danger signals, and what trouble would be apt to follow a forgetfulness of their presence! While forgetfulness as to *these* may not be probable, they serve to represent what might be a mountain of difficulty in the case of others more complicated in their structure, and not so well known.

More than this, these hieroglyphics not only portray the atomic and molecular union of the ultimate constituents which have entered into bond, but they exhibit the value of each compound in its combination with another. They also furnish a clew to the compatability or incompatability of various chemicals, and thus an added safeguard against mistakes. In short, if a knowledge of chemistry be an essential qualification of the competent pharmacist, then whatever tends to keep that knowledge prominently present with him in all his work, should be encouraged, and it will hardly be denied that the addition of chemical formulæ to the officinal titles on shelf bottles is a step in that direction.—*Pharmaceutical Review.*

Cocaine Cantharidinate.

The interesting pharmacological investigation by Liebreich on the action of salts of cantharidinic acid, which appeared more than a year ago, has up to the present attracted but little attention. The indifference is, no doubt, due to the somewhat unsatisfactory results obtained, and to the consideration which was being given at the time to the treatment of tuberculosis with Koch's tuberculin. The objections raised against the employment of cantharidinates, either of sodium or potassium, consisted in the fact that their subcutaneous injection was followed by considerable local pain, and that if the remedy was not very cautiously applied it was liable to give rise to dangerous symptoms in the kidneys and even in the intestines.

Dr. Hennig is satisfied that if these unpleasant and dangerous symptoms could be avoided the subcutaneous cantharidin treatment would gain a permanent position not only in the treatment of tuberculosis, and especially in laryngeal, pharyngeal, and nasal tuberculosis, but also of chronic catarrhal processes of the upper bronchial tubes. On a previous occasion he has recommended that the violent pain experienced immediately after injection, and even the second period of pain that occurs three to nine hours afterwards, and frequently continues for 24 to 36 hours, should be overcome by the previous injection of a few drops of cocaine solution.

This plan was soon changed for the employment of a solution of sodium cantharidinate, containing 1 per cent. cocaine hydrochloride. Dr. Hennig prepared this by suspending ½ grain of cantharidin in distilled water, neutralising and completely dissolving with caustic soda solution, and diluting with more warmed distilled water. To this neutral solution 15 grains cocaine hydrochloride was added in small quantities, producing at first a perceptible turbidity, which increased on warming, but gradually disappeared in the cold solution. The clear fluid was then made up to four ounces and filtered before use.

It appeared probable that a chemical reaction occurred in this preparation process, and that the sodium cantharidinate, $NaC_{10}H_{12}O_4 + H_2O$, first formed, reacted with an equivalent quantity of cocaine hydrochloride, $C_{17}H_{21}NO_4HCl$, to form