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ON THE USE OF SULPHUR AND ITS COMPOUNDS

IN

DISEASES OF THE SKIN.

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## ON THE USE OF SULPHUR AND ITS COMPOUNDS IN DISEASES OF THE SKIN.\*

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FIFTY years ago such a paper as the present one would have seemed superfluous, for sulphur was universally recognized as "good for diseases of the skin," very little attempt being then made to separate and differentiate the maladies of this organ, which are now so clearly distinguished. It is not very long since a lecturer, with more wit than knowledge, said that there were three classes of skin diseases; the first sulphur would cure, the second mercury would cure, and the third the devil himself could not cure.

Modern dermatology has made vast advances since those days, and this branch, so far from being the *terra incognita*, has become one of the most, if not the most developed branch of medicine; a larger number of distinct diseases are perfectly recognized as affecting the skin than any other organ, their differences clearly established, and the therapeutics of this branch will yield the palm to that of no other department.

There are, however, many difficulties inherent in the study of diseases of the skin which have in time past prevented the general practitioner from acquiring a perfect knowledge of this branch; chief among these has been the difficulty of observing cases in sufficient numbers to become familiar with the appearances presented. This, together with the vastness of the subject, must still be an obstacle before many, but to those who will search for and improve the opportunities offered by the large classes of skin patients in the dispensaries of the cities, much of the apparent difficulty in recognizing and classifying diseases of the skin will pass away.

This much is premised, because in my attempt to indicate concisely the true value of sulphur in diseases of the skin I shall be obliged to be very brief in allusions to diseases, and the whole value of my remarks as applied to practice will, of course, depend wholly upon accuracy of diagnosis in individual cases. To prescribe sulphur or arsenic simply because the skin is diseased, would be as irrational as to appropriate any other remedies to any special organ of the body, as, for instance, to give digitalis whenever the heart was affected. Four years ago the writer had the pleasure of present-

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ing before this Association a study on the use and value of arsenic in diseases of the skin, in which he endeavored to clear up the subject, by defining clearly what arsenic would accomplish in certain diseases, and in what affections it was useless or harmful. The aim of the present study is similar in regard to sulphur and its compounds, which, while of much service if rightly applied, are worse than useless if wrongly employed.

In studying the subject, we will for clearness separate the internal from the external use of the remedies considered, and will speak of each in turn. We have also to consider the following points: first, sulphur alone; next, as combined with other drugs; then of its compounds; and, lastly, of mineral waters containing sulphur.

Sulphur is one of the oldest remedies used in medicine, and it was early employed in diseases of the skin, and has long held its popularity as being "good for skin diseases." The reason of the great reputation of sulphur in this class of affections was undoubtedly because of the remarkable results which followed its use in scabies, and as the real nature of the disease and its cause was unknown, it was readily supposed that it should be equally effective in all skin affections, and it was also supposed that an agent which acted so well externally should be of further assistance when administered internally. Numbers of books have therefore been written upon the external and internal use of this remedy, and of course vast claims have been made for it, which in the light of to-day appear ridiculous. But we will find that sulphur with its compounds still plays an important part in cutaneous therapeutics when rightly and intelligently used.

Pure sulphur is seldom given alone internally, and is not generally thought to have much, if any, effect in diseases of the skin; its internal administration is commonly confined to its use as a laxative. I can, however, speak very highly of it in eczema about the anus and genital region, especially when this is, as is most frequently the case, associated with constipated bowels and piles. I have always employed it in connection with an equal part of the bitartrate of potassa, the precipitated sulphur being preferred. Of this one to two heaping teaspoonfuls are given at night, stirred into a teaspoonful or so of water; the addition of a syrup impairs its value. The benefit from this in eczema of the anus I can attest by a not inconsiderable number of cases. I have no suggestion as to the *rationale* of its action, except that it acts as a liver stimulant, nor have I much experience with it in any other disease of the skin than eczema. I have given it repeatedly when this eruption was situated elsewhere than on the anus, but as many other remedies were used, I cannot be certain as to its effects.

The lowest combination of sulphur with oxygen, sulphurous acid,  $\text{SO}_2$ , is seldom used internally, but will be spoken of later in regard to its external uses.

Sulphide of calcium,  $\text{CaS}$ , has recently attained a considerable reputation in the treatment of skin lesions attended with suppuration, and to its value I wish to bear strong witness, as I have notes of over one hundred cases in which I have used it. The first suggestion of its use was in acne, and a number of observers have testified to its

value in certain cases. I have administered it to sixty-nine patients with acne, sometimes alone, more often perhaps combined with local measures, but even then I have been able to test its efficacy, because it was used intermittently, and the changes could be thus readily observed. It certainly will not cure every case of acne, and on many it seems to have little, if any, effect. It is chiefly serviceable in those cases which have considerable of a pustular element, either as the acute small suppurating pimples of youth, or the larger masses of acne indurata; it is of but little service in rosaceous acne.

The somewhat similar affection, hordeolum, finds in the sulphide of calcium its best remedy, and in a number of cases I have seen the styes wither at once under it and cease to be produced; of its great value in this lesion I can bear personal testimony, having taken it myself on a number of occasions and with almost uniform success. In abscess of the external ear it has been highly praised.

Sulphide of calcium is also of decided value in furunculosis, not only in aborting the boils present or forming, but in checking the suppuration from those which have already discharged; this remedy also I believe improves the habit or state of the system, so that in place of a succession of boils, as expected, a single one or two has completed the attack.

The effect is also striking in anthrax, and I have more than once seen a large mass of inflamed tissue, which would surely have suppurated, subside under its influence; and I have also seen a carbuncle which already exhibited points of pus end in a marvellously short time by this means. I have given it in twenty cases of boils and carbuncles, generally, if not always, alone. It is also of great service in the boil-like masses, often of some size, which appear on the heads of even very small children during the summer. I could give a number of cases where this process was thus checked almost at once.

True, non-parasitic sycosis has in several instances been greatly benefited by sulphide of calcium internally in my hands, though it is capable of carrying the case to a certain distance and no farther.

I have also used this remedy in a number of cases of suppurating bubo during the past year and with striking results; my friend, Dr. Otis, has also recently reported good results in similar cases.

There is not a little difference in the different specimens of the sulphide of calcium, and not infrequently the drug will appear inert. When made into fresh pills they should have a decided odor of sulphuretted hydrogen, and should leave a taste of the same in the mouth; they may also be followed by slight eructations of the same, and the stools should have the same odor.

The dose which I have most usually employed is one-quarter grain, four times daily, on an empty stomach. I have generally used the pills freshly made with a small amount of the extract of gentian, but the gelatin-coated granules are quite reliable. To children I have commonly given it in suspension in water with a little glycerine, and have found it equally effective; the dose has been smaller, often a tenth of a grain, to infants, four or five times daily. I have also given, with good effect, the smaller doses, as one-tenth of a grain every two or three hours.

Sulphuret of potassa is also given internally, and probably will be

found effective in the same conditions as those in which the sulphide of calcium is of service; but of this I have no personal experience.

That it is the sulphur which exercises the beneficial effect in these cases there can be very little, if any, doubt, inasmuch as other preparations of sulphur have been used with great advantage in the treatment of boils. These are the sulphite and hyposulphite of soda and sulphuric acid. The former of these preparations I used quite extensively some years ago, and reported very favorably upon it as the best remedy with which I was then acquainted. Sulphuric acid is also well recognized as of service in this condition, and need not be dwelt upon here.

It is also hardly necessary to enter upon the consideration of the many agents used in medicine in which sulphur enters as a secondary constituent in the form of sulphuric acid, but as they are among the most important remedies they should be mentioned: such as the sulphates of atropia, copper, iron, magnesia, mercury, morphia, quinia, soda, strychnia, and zinc. It must be remembered that sulphur is a large constituent of the human frame, and not an unimportant one, and that the reason why the sulphates are among the best forms in which to employ the various other agents may be and probably is because they are already combined with one of the elements of the body. As an example of a wonderfully valuable combination of the compounds of sulphur in diseases of the skin may be mentioned that known to many as Startin's mixture, with the following formula: R.—Magnesiæ sulphat.,  $\mathfrak{z}$ i; ferri sulphat.,  $\mathfrak{z}$ i; acidi sulphurici dil.,  $\mathfrak{z}$ ij; tinct. gent.,  $\mathfrak{z}$ i; aquæ,  $\mathfrak{z}$ ij.—M. Teaspoonful after eating. This is most potent in reducing the cutaneous congestion in such conditions as erythema multiforme, erythematous eczema, and urticaria, and is constantly employed in my private and public practice. The effective agent is certainly not the magnesia alone, for if given singly or in other forms the results are not the same; nor is it the iron or the gentian, but it is the *combination*, and I cannot doubt but that the sulphur element plays a very important part.

The confirmation of the internal value of sulphur is further found in the mineral waters which are impregnated with sulphuretted hydrogen, known as sulphur waters, such as those of Richfield, Sharon, Avon, the White Sulphur of Virginia, and many others in this country and abroad. All are familiar with the popular views both among the laity and the profession in regard to the efficacy of these waters in diseases of the skin. There is very generally some basis for popular opinion, and in this instance it is not very difficult to find. The error in it is in the want of discrimination of proper cases, which must ever obtain in such medical matters. These sulphur waters undoubtedly first obtained much of their reputation from their use externally in parasitic diseases, animal and vegetable, as will be mentioned later.

But these sulphur waters have also some power upon the system used internally, and beyond question are of a certain value used thus in some skin diseases: the waters act upon the liver and intestines, and are undoubtedly of service in the rheumatic and gouty habit. I have seen a certain amount of good from them in chronic

eczema and acne, and have personally experienced the benefit of the White Sulphur taken internally alone in urticaria. But multitudes of patients with eczema, acne, and other skin affections go to these springs without benefit, and the many instances of psoriasis which I have seen who had previously been to these springs without permanent benefit leads me to doubt their power over this disease.

I greatly regret that I cannot speak more definitely in regard to the internal use of these sulphurous mineral waters in diseases of the skin, for while I believe that as quickeners of the emunctories they are of some value, I have seen so many individuals who have failed of cure at them, that I cannot but think that the mode of their use has been faulty. Unfortunately, we have very little reliable information in regard to the actual powers of our mineral springs, for little trust can be placed upon the matter printed in the circulars and pamphlets furnished by the hotels, and we have almost no independent and well-weighed testimony, based on large experience. Even physicians resident at springs, both in this country and abroad, become prejudiced to such a degree as to hardly see any value in other springs save their own, and to attribute everything to the spring in which they have had experience. There is great need for the collection of reliable data on a scale sufficiently large to give deductions therefrom which shall be of value. The writer has many on record, and seeks daily to gather such from practice, but the reports are yet too conflicting to allow of any conclusions to be formulated. He will be greatly pleased to receive any assistance possible in this direction, and will be glad to learn of positive, proven facts of value in regard to these matters, as he intends to report on the matter when sufficient data are collected.

The external use of sulphur and its compounds is of more definite interest than the internal, because the facts are more conclusively demonstrable.

First and chiefest of all must be placed the treatment of scabies, which, as previously remarked, has probably been the means of giving sulphur much of its reputation as curative of diseases of the skin. The itch is undoubtedly one of the diseases which is becoming extinct with advancing civilization, although in time past it formed a not inconsiderable share of cases with skin disease. It is to-day very much more frequent in some countries than in others. Thus, at the clinic of Prof. Hebra, in Vienna, one sees cases almost if not quite daily, and in Paris it is so common that those affected with it are not admitted to the great Hôpital St. Louis, but merely receive a card, which passes them through the rapid cure which will be described later on. In Glasgow scabies formed one-quarter of ten thousand skin patients in public practice. In this country, on the other hand, it is very uncommon, forming only between two or three per cent. of all the cases of general skin disease which I have seen in public practice.

During our late war, however, the disease was much more prevalent, and good observers consider that the "Army itch" was only this disease. It is also sometimes common in public institutions.

It is, therefore, principally as a local agent that sulphur has its chief reputation, and it is thus that it is often employed in general

skin disease, with the hope or impression that in some way sulphur is "good for the skin," without any definite idea of what is to be accomplished.

Now, sulphur is an irritant to the skin, whether it is applied to abraded surfaces or rubbed well into the healthy skin, and this must ever be borne in mind when it is used. It is of value, therefore, only when a stimulant is required, or when its parasitic action is desired, and is consequently of service in comparatively few diseases of the skin. Foremost among these still stands scabies, for which it may almost be called a specific, for it certainly can, singly and alone, cure this eruption by destroying the cause, the itch insect.

The treatment of scabies has been now reduced to a very simple matter in most cases, and depends upon the very thorough application of the parasiticide to every place occupied by the burrowing acarus. The plan generally adopted is that of Hardy, of Paris, which consists in soaping the body well for half an hour, following this with a warm bath for an hour, and giving then half an hour of thorough inunction. The sulphur ointment of the Pharmacopœia, which is composed of one part of sulphur to two of simple ointment, is far too strong for most skins, and is very apt to excite an artificial inflammation, which may readily be mistaken for a further eruption of scabies. It is well, therefore, not to have it used too long or too energetically on delicate skins; one thorough course, such as that above described, suffices for the cure of many cases, but it is well always to wait a few days to observe whether the itching returns, when the course may be repeated. I seldom, however, use the officinal ointment, but prefer to have one made of a strength suited to the individual case, generally about two drachms to the ounce, adding a drachm or two of storax, which is a parasiticide of very considerable value.

Precipitated sulphur is of no little value in acne, and many of the best applications used for this eruption depend largely for their efficacy upon sulphur. Such, for instance, as the following: R.—Sulph. precipitat., ℥i; etheris sulphurici, ℥iv; spts. vini rectific., ℥iijss. Also, R.—Sulph. precip., ℥i; tinct. camphoræ, ℥ij; glycerini, ℥ij; aquæ rosæ, ℥iijss.—M.

The compounds of sulphur will also be found very efficient in acne, as, for instance, the hypochloride of sulphur, so much extolled by English physicians, used in the strength of one or two drachms to the ounce of ointment, well rubbed into the face at night. Iodide of sulphur, used in the same way, in perhaps a little less strength, is also effective.

But all these applications are stimulating, and care must be taken not to carry this plan of treatment too far, for while we can, by well-regulated stimulation, urge the skin to healthy action, it is very easy to overstep the bounds, and we can have the harsh, irritated skin, which may be even more annoying to the patient than the eruption which we seek to remove.

Another compound of sulphur is also of very great service in acne, and this is found in a formula which I have mentioned already several times in print. This preparation is only mildly stimulating, and is one which can often be used with advantage even in quite

inflamed faces. It is composed thus: ℞.—Potass. sulphuret., zinci sulphat., āā ʒi; aquæ rosæ, ʒiv.—M. The ingredients are each dissolved in one-half the water, forming clear solutions; they are then mixed, and a white precipitate takes place, which is to be shaken up, and allowed to dry on the face. In speaking of the value of local applications in such eruptions as acne, etc., it will be understood, of course, that internal, dietetic and hygienic measures are to be used as well; these are, of course, foreign to the immediate purpose of this paper, which is only to show the importance of sulphur as an agent in dermatological practice, if rightly used.

Sulphur and its compounds have a not inconsiderable value in the treatment of the vegetable as well as animal parasitic eruptions. Sulphur will destroy the life of the parasite in favus, ringworm, and tinea versicolor, and may be employed with success in several ways. My preference is usually for sulphurous acid, as I have urged on several previous occasions. The mistake in the ordinary methods of using sulphurous acid is, I think, twofold: first, it is generally recommended to be used diluted with one or several parts of water. This I consider to be entirely unnecessary and worse than useless, as it diminishes the efficacy of the remedy. Pure, *fresh* sulphurous acid I have not found too irritating, even to the skins of females and children, to whom I constantly advise it. The reason for the common advice to dilute it rests, I think, upon the second error which generally occurs, namely, that the acid is not perfectly fresh, but has undergone a decomposition, as it has a very great affinity for oxygen, whereby it is changed from sulphurous acid ( $\text{SO}_2$ ) to *sulphuric acid* ( $\text{SO}_3$ ), which latter is of course irritating to diseased and delicate skins. To avoid this as far as possible I always order a fresh, unopened package of sulphurous acid, as it comes from the manufacturers, in half-pint and pint bottles, and have the patient fill a small bottle, say one containing an ounce, from this, and use from the smaller bottle, keeping the larger one tightly corked; when this direction is followed only good results are seen.

Sulphite and hyposulphite of soda, in solution, two to four drachms to the ounce, will also serve tolerably efficiently to remove these vegetable parasitic eruptions, but are of less value than the pure sulphurous acid, upon which their virtues depend.

We may also use the sulphurous acid very efficiently in the way of the well-known sulphur vapor-bath, which is made by burning sulphur in a closed box in which steam is also confined. This will remove the tinea versicolor, or liver-spots of older writers, on the chest and back quicker than almost any other measure, a very few baths serving to quite free the skin from it. But this eruption has a very great tendency to relapse, because the destruction of the parasite may not have gone far enough to reach every spore, and a single mass of the vegetable growth remaining in or around a hair follicle may be the means of propagating the disease anew. It is well, therefore, to continue treatment for some time after the apparent removal of the eruption.

A word may here be added in regard to the use of sulphur vapor-baths in other diseases of the skin, for it is very common for patients to try them, and for physicians to recommend them indiscriminately

in all cutaneous diseases. It may at once be stated that they should not be so used, and I see far more persons who have tried them either ineffectively or to their harm than I see those who are benefited by them,—yes, two to one. It may be almost too trite a remark to make here, that the value of remedies in skin diseases depends wholly on accuracy of diagnosis and applicability of the remedy, but it is a point which is hardly enough borne in mind by the profession at large, and no better exemplification of this can be found than in the reckless way in which sulphur baths are advised when the skin is diseased, unless it be the wholesale administration of arsenic under the same conditions. Sulphur vapor-baths are of service in comparatively few diseases of the skin. In the vegetable parasitic diseases as mentioned, they are useful, except, of course, for eruptions on the face and scalp, where they cannot be applied. They are also of value in scabies, though inferior to other means. Psoriasis is benefited by them, but cannot be cured by this means, and not infrequently they will hardly affect the eruption at all.

Sulphur vapor-baths are, as a rule, inapplicable in eczema, except perhaps in some very chronic cases, where the disease is localized to a few patches, and the skin is hard and strong. In the vast majority of cases of eczema the sulphur vapor-bath irritates the skin and aggravates the eruption, or causes new disease. It is wholly inapplicable in such eruptions as urticaria, herpes, pemphigus, and the like, together with the large classes of hypertrophies, atrophies, and new formations of the skin.

In regard to the use of the sulphur vapor-bath in syphilis there is some difference of opinion, but there can be no doubt that it cannot cure the disease, though, by increasing the emunctory action of the skin, it may make the mercurial course to be better borne, and more effective in certain cases which have long resisted treatment.

Time and space forbid entering more largely into the subject, but sufficient has been said to call attention to the wide field of usefulness which sulphur plays in the treatment of diseases of the skin, and yet to show that it is not a panacea for this class of affections. These remedies are to be employed intelligently, like any others, and when so used may generally be relied on in the appropriate diseases.

Sulphur is of value internally, as it acts upon the liver and intestinal canal in cases of eczema of the anus, and in many cases of other skin disease which are accompanied with piles. In its compounds it is of value in diseases in which the production of pus is a feature, as in the use of sulphide of calcium, sulphuric acid, and hyposulphite of soda in boils, acne, carbuncles, etc.

Locally, the main use of sulphur is in the treatment of the parasitic diseases, animal and vegetable, and is also of service in acne. It is a local *stimulant*, and, if incautiously used, gives rise to *irritant* action, and is entirely inappropriate in acute inflammatory skin affections, and useless in hypertrophies, atrophies, and new formations. Sulphur vapor-baths and mineral water containing sulphur should not be used indiscriminately in skin affections, but are of value in parasitic diseases, and also in those in which a rheumatic element is strongly pronounced.



