many cases,—relieving muscular pains, decreasing dyspepsia, etc.

Digitalis in small doses has to be used occasionally for those individuals with dilated hearts and the accompanying symptoms of lost compensation.

Psychotherapy: In no other class of medical cases is it as necessary to put the mind at rest and give encouragement as it is in these. In handling these people one must have tact, firmness and cheerfulness at all times.

To write out definitely for them every small item of the desired régime is the best beginning of psychic treatment. Routine relieves their minds and gives them confidence.

In conclusion, our duty seems to me to our patients with arteriosclerosis is to acknowledge their condition as early as possible, tell them frankly their danger, help them to moderate their lives so that they may go on comfortably to the end of their allotted time.

Discussion.

Dr. W. Jarvis Barlow, Los Angeles: It is impossible at this late hour of the morning to take up the many interesting features that Dr. Frick has presented. A few points, however, have come to my mind, i.e., to emphasize the importance of early diagnosis and the help of the oculist in these cases. The percentage of members in a family having similar trouble of circulatory disturbance, stated by Dr. Frick, as about 70%, coincides with most observers. We must always find other members of a family with circulatory disturbance. I remember a family in which both the parents died and all the children (4) are now suffering from arteriosclerosis. In regard to the symptoms, the things most notable are the mental disturbances, vertigo and pains in the extremities. These are the things which impress me a good deal. The causes are generally over-exercise mentally or prolonged mental exercise rather than prolonged physical exercise; over-eating rather than over-drinking or smoking. The cases I have seen have been more from prolonged mental disturbance and strain. A few words in regard to treatment. Dr. Frick has laid great stress rightly on the matter of rest and diet. I do not know of any class of cases where one can get such good results with mechanical aid and without medicine as in arteriosclerosis. Diet of milk and vegetables or a buttermilk and vegetable diet has been most efficacious,—also baths and exercises and baths. Dr. Frick did not give quite enough emphasis to baths,—electric or warm baths. Recently I have given several cases Nauheim baths who did not get well as rapidly as those under the electric baths. The electric baths are given with the idea of increasing the elimination and correcting the faulty metabolism, and also reducing the pressure. Many men have recently written on the high frequency current bringing down the blood pressure. I have personally had experience with that. I regret the hour is so late for continuing this interesting subject.

Dr. T. J. Orbison, Los Angeles: I think it is a great pity that this subject should be crowded into the end of the morning, as there is so much to be said about it. It is really one of the most important questions to be considered by physicians in general. A great many of these cases are seen first by the physician—they come with in definite symptoms—mental agitation, depression, interference with sleep—interference with digestion and mental warnings. The treatment depends a good deal upon when you think the essential thing is to find out how long the patient has been the subject of this condition; to this end I have every case examined by an oculist, because so often the first symptom is sclerosis of the eye arteries. If you can get a case as early as that without any other symptoms, except possibly some heightened tension, the patient should be out of bed for a certain length of time each day. Very many women are affected. I think that what shows that we can, to a great extent, rule out alcoholism as a cause. In a good many of the cases in men, however, instead of alcohol I believe that tobacco is a cause. There is no drug which will heighten the blood pressure as will nicotine. I put these patients to bed for a time—the time being regulated by the nervous condition of the patients. I believe with Dr. Barlow, that the bath should be instituted early. You will find a quieting of their minds and of their hearts. In treatment, we know that we have connective tissue being formed in the meniodide is the drug to use, and after a time by iodides alone the blood pressure will come down and stay down. When the blood pressure is up to 200 or even 150, I believe in using the nitrates in addition to widen the lumen of the arteries. In late cases showing anginal symptoms, nitroglycerin is of benefit. But I believe the main point is in absolutely regulating the whole mental and physical life of the patient.

TREATMENT OF EPITHELIOMA BY CURETTING, FOLLOWED BY CAUTERIZATION WITH CHROMIC ACID AND LATER BY EXPOSURE TO X-RAYS.*

By George D. Culver, M.D., San Francisco.

In the treatment of a superficial epithelioma certain points must always be carefully considered in devising a line of procedure that will completely remove all the pathologic tissue. No matter what line of treatment is used, outside of complete surgical removal, curettage is essential if the infiltration is at all extensive, and those cases in which it is not necessary are exceptional. Though many different methods of handling such a lesion are well known, attention is called to a particular method as one of preference in selected cases for gaining the best results both as to complete removal and as to absence of a disfiguring cicatrix. No one wishes to be left with a conspicuous scar, not even an elderly person, and many patients presenting epithelioma of the face are still young.

During a number of years of association with Dr. Douglas W. Montgomery and Dr. Howard Morrow, I have had the opportunity to see many cases successfully treated with chromic acid crystals after careful curettage. This chemical is chosen primarily because it is a liquefying caustic, and like potassium hydrate it dissolves the cells and does not produce a banking up of the cauterized tissues when first it comes in contact with them, as do the caustics of which silver nitrate is the type.

The choice of the chemical as a caustic is an interesting and important matter. Some chemicals act superficially and form a leathery barrier against their deeper action. Other caustics are liquefying and tend to penetrate deeply. To illustrate: nitrate of silver is an excellent cautery to stop superficial bleeding because it forms this tough membrane, whereas one of the disagreeable features of using chromic or trichloracetic acid, caustic potash or acid is the retention of matter that the bath should be instituted early. You will find a quieting of their minds and of their hearts. In treatment, we know that we have connective tissue being formed in the media—iodide is the drug to use, and after a time by iodides alone the blood pressure will come down and stay down. When the blood pressure is up to 200 or even 150, I believe in using the nitrates in addition to widen the lumen of the arteries. In late cases showing anginal symptoms, nitroglycerin is of benefit. But I believe the main point is in absolutely regulating the whole mental and physical life of the patient.

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* Read at the Forty-first Annual Meeting of the State Society, Santa Barbara, April, 1914.
tissues are cut into more deeply. This action, which may be very disagreeable in other conditions, is what you wish here. Dr. Alonzo Clark used to say that if you put a mouse into chromic acid it would be dissolved. This dissolving action is just the property required in an irritative disease like epithelioma.

Chromic acid is used because experience has shown that the destruction produced is sufficiently extensive to remove all the pathologic epithelial structures remaining after burning, and furthermore after it acts it forms a tough crust countersunk in the tissues, effectively closing the wound and preventing septic infection. The prevention of sepsis is an important matter in the resulting scar, as the less the sepsis the less liability is there to redundancy of granulation tissue and therefore to redundancy of scar tissue.

No matter how extensively chromic acid is used, it is apparently devoid of any dangerous systemic effects. Its foregoing properties are so advantageous that Dr. Montgomery has used it in the treatment of superficial epitheliomata for twenty years.

In using chromic acid most cases can be handled with local anesthesia, only a few requiring general anesthesia. All the friable tissue is vigorously scraped away until a firm underlying base is reached. Too much importance cannot be placed upon thoroughness of curettage. Attention is called to this by Dr. Sherwell in speaking of curettage and the application of caustics, and his results prove his method an excellent one. The caustic he uses would, in the hands of one who would not curette so thoroughly, be much less effective and recurrences would be more frequent.

After curettage, fresh bright red crystals of chromic acid, taken from a bottle that has been kept sealed, are applied to the dry raw surface and pressed down. That the surface should be dry and that the chromic acid crystals should be bright red are both important points. Any deepening of the color shows the presence of water. Moisture is to be guarded against, both in the crystals before they are applied and in the wound on the application of the crystals, as chromic acid in contact with a liquid becomes strikingly less vigorous in its action. The dryness of the curetted, surface is attained either by pressure with cotton pledges or by applying a solution of cocain and adrenalin. Only after all oozing has stopped can the caustic be advantageously applied. The object of the cocain in contact with the raw surface is to render it less sensitive to the burning effect of the acid. This is helpful in treating a feeble elderly person as it prevents any distinct shock caused by the lightning-like rapidity with which the cauterant acts, and a restless patient is less likely to jerk away from the operator.

Chromic acid in contact with the raw tissues bubbles up and becomes black, and much heat is developed. The black liquid is already, however, much less active than the bright red crystals and does very little harm by flowing over on the sound skin. This spreading is prevented by the use of cotton. Often the acid burns into small blood ves-

The pain produced is of short duration, is of a severe burning character for a few minutes, reaches its climax before the patient leaves the office and is practically gone in one to two hours. Later there may be some annoyance caused by the pressure of the unyielding crust, and in a neurotic individual this discomfort may be magnified to the extent of his feeling real pain. The great majority of patients consider it lightly. Still later, as the crust loosens, there is some itching. This can be relieved by softening the outer edges with a mild antipruritic salve and removing the dried accumulation formed by the oozing from underneath the main crust. Should there be still further discomfort the application of a hot starch poultice containing boric acid will readily give relief. This sort of poultice is also an aid in loosening the crust when its removal is desired.

The only further treatment necessary is that which may be indicated symptomatically. Dressings are unnecessary, as the crust forms all the protection required. The part may be powdered or covered but only to disguise it. Careful cleansing is of course advisable and the patient should not be away from the physician too long, as frequently a mild pyogenesis appears, which is annoying only when the pus is held in by the crust. It is of minor importance and never leads to anything serious if the crust is loosened and the part frequently cleansed with an antiseptic lotion.

The crust ordinarily remains on five or six weeks, during which time the process of healing takes place underneath. Sloughing of the crust begins, usually, in ten days or two weeks, and is first evidenced by a loosening at the edges where healing first occurs.

In following a number of these cases in which results as to apparent complete cure have been most excellent and in which the cosmetic results were equal to any obtained by use of other caustics, my attention was called to the fact that some of the cicatrices were not as good as those following complete or partial treatment with X-Rays. In fact, the scars following the use of the X-Ray are less disfiguring than those resulting from any other line of treatment I know. In all probability whatever complete cures are obtained by the use of radium would show results as good.

The observation of the irregular cicatrices led me to the use of X-Rays for the purpose of attempting to control the scar formation. My conclusion is, of course, a tentative one, as it is based upon a limited number of cases treated in the office, but I believe that X-Rays, in conjunction with the use, previously,
of the chromic acid method, is advisable. The plan has been to remove the crust as soon as it is fairly loose, some time during the third or fourth week. The part and a border around it is then exposed to X-Rays in medium dosage, as at a distance of six inches for ten minutes, using on an average a voltage of thirty and an amperage of two, all the surrounding parts being carefully covered with lead foil, such dose to be given two or three times a week during the subsequent period of complete healing. It is necessary to remove the crust as the rays have little effect unless the base is exposed. In extensive lesions which have been cauterized with chromic acid it is at first difficult to remove all the crust. Its margin can be cut away, exposing the part where healing begins, and this outer free surface can be exposed to X-radiation. Each subsequent time more of the crust will be found removable and more of the base exposed for treatment. By this procedure one has full control over the extent of unhealed surface where X-radiation is indicated.

The result of this use of X-Rays on the lesion as the scar is forming is analogous to the beneficial effect produced by the rays in keloids whether secondary or spontaneous in their development. I believe that in many instances hypertrophic scars can, by the above method, be prevented where they would otherwise develop and be a poor advertisement to the physician as well as a source of chagrin both to himself and to the patient.

Not all cases are handled by the method in question, as the statistics herein given will show. Potassium hydrate stick has proven the preferable caustic when a similar treatment is carried out on a lip epithelioma. Arsenic paste is more far reaching in extensive deep involvement, and is used, but not as frequently as formerly, while other cases indicate the most complete surgical removal, and this method is imperative if there is glandular involvement. Still other cases may baffle the surgeon and yet be amenable to the palliative and even curative influence of the Roentgen rays. Radium has its use in these cases as well as in those less serious. Dr. Friedlander speaks highly of fulguration in eradication of the growths. Only a wide experience will enable one to choose the best treatment for a particular case, and to alter it later is surely not a crime. It is always necessary to weigh all points most carefully before beginning any line of treatment. We believe that in not a single instance were the patient's chances jeopardized by the method described. Where a second operation is necessary, if done early it is far from being a formidable affair.

The points considered in the selection of cases are these: The lesion generally has been present many months, is either a firmly indurated plate or tubercle in the skin, of shiny, waxy appearance, pinkish or yellowish in color, showing distinct dilated capillaries near its surface, or it is an ulcerated lesion showing in some part of its periphery a raised, rolled or nodular firm, waxy border which presents the characteristic dilated capillaries, and having an irregular center with an uneven, easily bleeding base that discharges a viscid fluid which dries into dirty yellowish crusts. Its appearance is often greatly changed by added infection or by previous treatment, but some of the characteristics are always present. Metastatic processes are uncommon in this type of epithelioma, but are sometimes present, and if so an entirely different treatment is required, and if inoperable it becomes the unpleasant duty of the physician to so consider it.

It is this type of growth that is so frequently mistaken for lupus, but the history of its not having begun so early in life and the absence of the so-called apple-jelly nodules seen in lupus vulgaris through a glass pressed over the lesion would rule out the latter. It is possible it may be a euphemism on the part of the doctor in telling the patient he has lupus, as any name implying cancer carries with it such terror.

Out of one hundred and thirty-nine patients presenting epitheliomata, forty-four with fifteen or more separate lesions were treated by curettage and the application of chromic acid crystals. The tumors were located as follows: Nose, fifteen; cheeks, fourteen; ear shell, seven; forehead, seven; eyelids, five; and one each on upper lip, lower lip, neck, chin and back of hand. Twelve of the forty-four patients had previously been treated by one or more of the following methods of treatment: Arsenic paste, CO₂ snow, curettage followed by the application of trichloracetic acid, Paquelin cautery, surgical removal and "Christian Science," and there was either incomplete removal or recurrence from apparent complete removal. Five of the forty-four are now under treatment. Of the remaining thirty-nine, twenty-three of whom we have knowledge and who had twenty-seven different tumors have remained free from recurrence for periods of time varying from a few months to five years. We have fairly definite information that seven of the remaining sixteen never had recurrences or have not had up to the present time, and of six others information is unavailable. Three had recurrences, and one of the five under treatment has a recurrence, making a total of known recurrences in four patients, practically nine per cent. Subsequent treatment of the four has been along similar lines.

Eleven cases have been treated with Roentgen rays following the removal of the crust formed by the cauteryization with chromic acid, and the results are so satisfactory that we are following the plan quite generally.

In closing I wish to thank Dr. Douglas W. Montgomery, whom I first saw use chromic acid, for the use of statistics of cases treated since the earthquake and fire of April, 1906, and for his many valuable suggestions.

**Discussion.**

Dr. Albert Soiland, Los Angeles: Dr. Culver has given a very lucid explanation of the destruction of superficial epithelioma by chromic acid. This is a very large field to be covered in a short discussion. There are two or three points to be brought out in making the treatment clear. In using the method advocated, the curative agent in the treatment is distinctly chromic acid. The X-Ray is used to encourage healing. In curetting, the skin should be stimulated as little as possible. In the malignant varieties of superficial disease, where metastasis is possible I do not think curettage a good procedure. It exposes the surface and opens up avenues for in-
fection. The avenues are then walled off. The chromic acid, I believe, is one of the best local caustics in the destruction of epithelioma. Gotthelf tells me that he has relied entirely on the use of the X-ray alone; so does Rey of Copenhagen. I have not used many caustics personally. I have used chromyl chloride or Gb, but I rely largely upon the destructive action of the ray itself in the disease. I think the results would compare favorably with those of Dr. Culver's report. Whether the failure of the patient is as great with X-Rays alone as with any other method is difficult to say. I have treated epithelioma for the last ten years with the X-Rays, and believe the percentage of cures is as high as that of any other method. The subject is a large one and requires much more time than this in which to discuss it properly. One of the gentlemen in discussing this paper has spoken of the ease with which epithelioma of the face can be cured by surgery. I will add that a large many of my cases have been post-operative cases of recurrence. Cases that have been referred to me by well-known surgeons.

Dr. Harry E. Alderson, San Francisco: The paper read by Dr. Culver and the remarks of the gentlemen discussing the same are very interesting. I think that much more attention will be paid to X-rays in the future and that the importance of determining beforehand which type of epithelioma is present. It is well known that the basal-cell type of epithelioma is comparatively benign and that the squamous-cell type is a rather serious affair and shows a tendency to metastasize and involve the glands. With the basal-cell type we know that simple curetting and toluidine application of some caustic will be enough to destroy the neoplasm if it is not very large. The action of the caustics, particularly chromic acid, arsenic and povidone iodine, has a marked inflammatory reaction, which reaction is supposed to destroy any of the remaining epithelioma cells. With the squamous-cell type we have to account for the frequent early metastasis and with the squamous-cell type we have to account for the frequent early metastasis and with the squamous-cell type we have to account for the frequent early metastasis and with the X-ray after first removing as much of the neoplasm as possible is a procedure which has the support of the best authorities. The results seen in the service of Drs. Douglas Montgomery and Howard Morrow at the Dermatological Clinic of the University of California Hospital, where I have been working for the past six years, justify the treatment. The cures that result are particularly good from a cosmetic standpoint.

Dr. E. D. Chipman, San Francisco: I think we must congratulate Dr. Culver on his very complete review of the local treatment of basal-cell epithelioma by caustics combined with the X-Rays. I have never tried treating them by this combined method—the choice seems to me between X-Ray treatment or the treatment with caustics. Of the caustics I believe chromic acid is easily the best. It has never occurred to me to try the combination. It would be very nice if we could separate these cases into two distinct classes, in one of which we should find special indication for the use of the X-Rays and in the other indication for the caustic. In my own attempt to make this distinction, I have been disappointed. My experience with chromic acid has not been so favorable as Dr. Culver's concerning freedom from pain. I have found as a rule that the patient has complained of considerable pain. Concerning the resultant scar, I find the X-Ray better for the cosmetic result. I must say that both methods are good. The combination should give everything desired.

Dr. T. C. Edwards, Salinas: There is to my mind one objection to drawing deductions in a condition with which we are so well acquainted. It is the use of the X-ray in cases of what one of which is considered a cure for the malady treated. By curetting, by caustic application of and following the application of the X-Ray the results are frequently satisfactory. I might mention a case I had some twelve or fifteen years ago—an old gentleman who had what I thought was an epithelioma of the nose. He had one of those papillomatous growths which broke down and he sent it to me for cure. I made an incision, removed part of it, and he said that he would treat it himself. He went around for a long time with a rag on his nose, and finally he was cured, but I have always been somewhat difficulties in the disease. I think the results would compare favorably with those of Dr. Culver's report. Whether the failure of the patient is as great with X-Rays alone as with any other method is difficult to say. I have treated epithelioma for the last ten years with the X-Rays, and believe the percentage of cures is as high as that of any other method. The subject is a large one and requires much more time than this in which to discuss it properly. One of the gentlemen in discussing this paper has spoken of the ease with which epithelioma of the face can be cured by surgery. I will add that a large many of my cases have been post-operative cases of recurrence. Cases that have been referred to me by well-known surgeons.

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with a large superficial epithelioma on the exten-
sion surface of the wrist the size of a dollar, also
one on the side of the nose the size of a dime. I
removed the former under cocaine; the latter growth
was referred to the Dermatological Department of
the Merritt Hospital, conducted by Dr. Harry Alder-
sonton, who used a method somewhat after that advised
here to-day. The lesion on the wrist healed as
rapidly as that on the face although it was several
times larger. I believe Dr. Culver is right in treat-
ing these cases as he does, but I am never sure that
I have the right kind of a case, so to eliminate all
doubt I have always resorted to surgical methods.

Dr. George B. Culver, San Francisco: I am glad
that emphasis was laid upon excessive and large
doses of X-Rays in certain instances. There are
many cases in which X-radiation seems to be the
best treatment, but in order for the X-Rays to have
their effect the indurated tissue must be removed,
otherwise you may get healing but you will get a
recurrence nearly every time. We have had a num-
ber of these cases act this way, and have found that
the only safe method is to first get rid of the in-
durated tissue, either by surgical removal by the
knife or by curetting thoroughly. There are cases
in which you cannot use the chromic acid cautery.
As an example, an old lady of eighty-two was
so affected by the curettage under cocaine that we
could not put on the chromic acid and we did not
dare to give a general anesthetic. We did use the
X-Ray to the extent of twenty-five minute applica-
tions at close range and got a very marked reaction.
Healing was slow and it has remained healed with
an excellent scar for over a year. As far as sur-
gery is concerned it is true that many cases come
to us after surgical treatment, and well performed
surgery, too. Other cases have been brought to us
by the surgeons because there have been recurrences
and it was feared that the same would be true after
other operations. As an example of the benefit de-
erived from the X-Ray, we have a case under treat-
ment for a very deep-seated epithelioma of the neck
that was removed a number of years ago and was
cut out widely. There was a recurrence, and we
tried a number of lines of vigorous treatment with-
out success. One of our best surgeons who saw
the man was willing to operate upon him, but felt
that the cure was uncertain. At that time there
was only a simple ulcer with a great deal of induration.
Later the ulcer opened until it became as large as a
half dollar. The man again asked for the X-Ray, and
he was given something like twenty applications
at twenty-five minutes each at the close range of
two inches, until the reaction was so marked it
looked as if the tissues would break down. The im-
provement has been most marked.

A NEW TONSIL KNIFE WITH A DE-
SCRIPTION OF ITS USE.

By PERCY SUMNER, M.D., San Francisco.

In order to understand clearly the method of
using a sharp knife in the enucleation of the tonsil,
it will first be necessary to review briefly the anat-
omy of the tonsil. The tonsil lies between the an-
terior and posterior pillars of the fauces, in a trian-
gular space formed by the two pillars conveying
from the base at the tongue to the apex of the
tonsillar fossa. The tonsil lies loosely in this space,
being attached to the walls of the fossa by loose
connective tissue passing from its capsule to the
wall. The mucous membrane passing over from the
pillars becoming fused to the tonsil itself and
forming the inner covering of the tonsil. Conse-
quently, in order to enucleate the tonsil quickly and
surgically it is necessary first to cut the mucous mem-
brane parallel with the pillars, from the base of
the tongue along the anterior pillar (clear up to
the uvula in many cases) and then down the pos-
terior pillar. The site for the cut is determined
by pressing down the tongue—this puts the ante-
orior pillar on the stretch and just posterior to it
at the base of the tongue is a slight depression—
here the knife is pushed into the mucous mem-
bane only and this is incised for its whole length. Pull-
ing on the tonsil will then show the capsule and
with the tonsil dissector the adhesions are usually
easily separated and the tonsil shelled out of the
fossa. All that now remains being to snare off the
tonsil at the base.

Since the tonsil can easily be pulled forwards and
inwards, there is no necessity for the curved instru-
ments that have been devised for grasping it and
cutting the mucous membrane. They are awkward
to use and a straight instrument fills all the re-
quirements, and is more easily managed. I first
used a probe-pointed knife, but early learned that
since only the mucous membrane must be cut a
sharp pointed small knife was needed. Acting on
this idea I tried the Buck's bistoury and then later
the Douglass crypt knife with the probe point
ground down to a sharp point. But in cutting with
these instruments I found there was a tendency for
the mucous membrane to slip beyond the cutting
surface on to the shank of the knife—thus going
in too deep and the mucous membrane would then
lie beyond the sharp edge of the knife. To obviate
this I have devised the knife herein shown. It has
the following advantages:

1st: The point being very sharp enables the op-
erator to cut into the mucous membrane quickly.
2nd: The shape is such that the mucous mem-
brane rides in the middle of the deep concavity, on
a keen edge.
3rd: The guards on the limit of the cutting
surface insure the cutting of the mucous membrane
only—so that the most timid operator can use it
without fear.
4th: And, lastly, it is so shaped that the field
of operation is never obstructed.

To summarize: Tonsil enucleation means dis-
section; the first and important point being to in-
cise the mucous membrane covering the fossa. To
do the thing surgically requires a sharp knife, as in
other parts of the body. When this incision is
properly placed and made the rest of the operation,
dissecting the tonsil from its bed is very much
simplified. A freshly sharpened knife should be
used for each operation.

PROCEEDINGS OF THE SAN FRANCISCO
COUNTY MEDICAL SOCIETY.

During the month of June the following meetings
were held:

Section on Urology, Tuesday Evening, June 6th.
1—Urology: Past, Present and Future. Martin
Krotsosynker. Discussed by Drs. Vecki, Eaton,
Teast, Krotsosynker.
2—Experience with Epididymotomy in Gonor-