The Government Uses Motion Pictures*

By C. J. Blanchard

THE value of the moving picture has been recognized for several years but the Government has been rather slow in adopting it in connection with its publicity work. Last year, there was a general awakening and under the impetus of a big National exhibit at San Francisco, the bureaus of several executive departments set their operators at work with the result that many thousands of feet of film were exposed and a comprehensive exhibit of Federal Activities in motion pictures is now available. The Reclamation and Forest Service Bureaus, for several years, have been collecting negatives, both still and moving, illustrating progress and development, all of which have proven of value in educational work. The pictures showing the engineering work of road building, construction of huge dams, excavation of tunnels and canals, modern and scientific methods of forestry and lumbering and the use of new machinery in placing concrete, have been widely used and have resulted in increased efficiency on all works under way.

On several of the irrigation projects, where important work is in progress, the camps have been provided with a theater and evening picture shows are given, open to employees and their families. The small admission charged has sufficed to return all expenditures for films and equipment. These entertainments have provided amusement and relaxation for the employees located as they are, far from the cities and cut off from the enjoyments of the towns.

They have served another purpose to those actually engaged upon the work, enabling them to study the methods of other engineers. They have stimulated the men with greater zeal in their work and have encouraged the development of new and original plans for labor-saving devices. The plan of exchanging films between projects has familiarized the men with all the work and has resulted in speeding up their own activities.

Arrangements are made with reputable film exchanges for the latest and best dramas and educational subjects so that the usual entertainments are as good as those given in the large cities.

Last summer, with funds contributed from the Exposition appropriation and by civic associations and railroads, I laid out a western trip covering about 17,000 miles of Reclamation territory and including subjects on Indian Reservations en route. I was accompanied by our official photographer, Mr. H. T. Cowling, with a full photographic equipment of cameras, films, etc. Nearly 20,000 feet of film were exposed and about 800 negatives of still pictures were taken. We were quite fortunate in having good weather throughout most of the trip and secured excellent films and photographs.

Our first stop was the Rio Grande Valley, New Mexico-Texas, and our subjects covered an area about 120 miles long. Our experience at Elephant Butte was somewhat exciting as our movies included a number of spectacular incidents in connection with the construction of the huge dam in the Rio Grande Canyon. Taking pictures from a skip while crossing the canyon on the cableways, 400 feet above the river, furnished some thrills but did not result in very good film owing to the swaying of the car and perhaps also to the nervousness of the operator and those who assisted in holding the camera steady. Standing directly under a 17-ton derrick while it was being swung skyward on the cableways tested our composure, but in this instance, we secured a splendid film.

On the Salt River project, we found excitement in taking pictures from a rapidly moving auto on a ticklish piece of mountain road skirting a canyon 1,000 feet deep, and later in a trip across the top of the Roosevelt Dam where the speed limit was overlooked. The camera was tightly strapped to the car and then held in place by two men who clung to the tripod while the operator turned the crank. There were moments when the taking of pictures ceased to interest us, particularly when the car swung sharply on the curves and a chasm, which seemed bottomless, yawned below us.

On the big ostrich farm in the valley, the camera was set up in a lane and 1,000 full grown birds were driven directly toward it. If you have never faced an army like this, you can not appreciate the tremors you feel, particularly when you recall the fact that a Missouri mule has nothing on a full-grown ostrich in the way of a kick. It was a toss up, however, as to which was the more frightened—the operator or the birds.

At Yuma, on the Fourth of July, with the thermometer at 118, we gathered excellent material for our exhibit, in quarry blasts, huge steam shovels and a trip on the new Government railway, down the levees on the Colorado River. A close-up view of the cars dumping rock and the leveller smoothing the levee top gave excellent results. A week later, at Riverside, California, 1,000 feet of excellent film were made at the Indian school. Our subjects here covered the whole institution and showed the Indian boys and girls at work and play.

Five days at the Grand Canyon were productive of

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Opening the gates of the dam.

Here the movie operator took a daring chance in order to catch the gush of water when the gates of the Minidoka dam in Idaho were opened.

Showing development of a homestead.

The harvesting stage of a homestead settlement drama, which followed the development of the land from a non-irrigated desert to an irrigated and productive farm.

Peaches—both.

A Western peach tree.

Moving picture of a round-up.

This was the title which Uncle Sam's movie operator thought should be attached to this picture; one of a film, showing fruit growing in the West.

This is on land which once was a barren desert, but which now bountifully produces fine fruit and farm products. This film shows the wonders of irrigation.

The operator posted to photograph the round-up of 1,000 Nevada steers on a piece of land irrigated by one of the reclamation service projects.

Farm scenes and building operations.

In Shoshone Canyon.

The camera was strapped in the automobile for a dash through this picturesque canyon.

UNCLE SAM IN THE MOVIES

Blasting, dragline excavator and steam shovel.

some extraordinary film. Here the operator used a filter with splendid results. This great chasm has proven a difficult subject for the moving picture man. The Canyon, which is more than a mile deep, is always partly obscured by a bluish haze which the lens seldom penetrates. The opposite cliffs, nearly a dozen miles away, are usually indistinct and blurred. By using a filter and slackening the speed of the shutter, the distant cliffs and their delicate and intricate carving were sharply revealed, while, at the same time, the towering pinnacles and numerous lesser canyons between were all in view.

The Colorado in flood offered a fine subject for the camera, and a touch of excitement for the operator whose pictures were taken while standing on slippery rocks, splashed with the spray of huge waves dashing at his feet. We utilized a number of Hopi Indians to add a touch of life and the picturesque to these views.

In Nevada, we were so fortunate as to be on hand when the last bucket of concrete was placed in the Lahontan Dam, a unique structure with enormous concrete spillways arranged in steps. In addition to numerous farm and crop scenes, our films show an interesting experiment in co-operation. Nearly 100 farmers with teams, cleared and leveled ten acres of sage brush desert for a new school site, the land for which had been donated by Secretary Lane. There is also a round-up of about 1,000 head of steers with a little broncho bucking and bull-dogging thrown in for good measure.

In Idaho, on the Minidoka project, our subjects were varied. Standing on a boulder in Snake River immediately below the Minidoka Dam, the operator focussed on the big Tainter gates and gave the signal to open. A wall of water 10 feet high, shot out like a catapult straight at him, and the spray of the mighty wave as it dashed against the rocks drenched him to the skin. Quick action in closing the gates prevented any more serious consequences of his daring but the picture was fine. There were many interesting views showing caterpillar drag line excavators and scoop wheels lifting water, all electrically operated.

On the Boise project, a number of exposures were made from the top of Arrowrock Dam, which is to be the highest in the world. Perched on a narrow platform 300 feet above the river, the camera was set to show the entire process of placing concrete. An entirely new and exceedingly unique method is employed, the whole presenting an especially fine subject for a picture. From a large mixing plant on the side of the canyon, two huge buckets were in operation, loading concrete and then swinging on the cableways to receiving buckets on top of the dam. The receiving buckets, suspended from the cableways, took their loads and discharged them through pipes to various sections of the dam. The pipes were movable, permitting the spreading of concrete to any point within a given radius. By this method 60,000 cubic yards of material go into the structure each month. One piece of film was made from the Government train which carried us through the big camp and into the steep walled canyon. All the views were impressive as this great structure is to be the most spectacular work ever undertaken for irrigation in this country. It will be 350 feet high and 1,200 feet long on top, and will contain 500,000 cubic yards of material.

In Colorado, our views were mostly crop scenes. We were fortunate in being in the Uncompahgre and Grand Valleys during the fruit picking season, and excellent orchard views resulted.

In Montana, the scenes on the Lower Yellowstone and Huntley projects were of crops. The harvesting of sugar beets furnished an excellent subject.

Encouraged by our successes on other projects, when we reached the Shoshone project in Wyoming, we determined to enter the dramatic field. Accordingly, we devoted some time in staging a Reclamation photoplay, the characters for which we had to seek on the project. Westerners, you know, are versatile. It was no trick at all to round up the very people we needed, although the full cast called for no small amount of talent. Our drama, founded upon fact, is the story of a settler who takes up a Government farm. The heroine, a school teacher from Illinois, decides to quit her job and ventures into the new West. She, too, locates a farm and hires her neighbor, the bachelor homesteader, to put it into crops. Through the various steps of making the desert blossom, there runs a vein of romance and a touch of tragedy for the heroine's home is burned down during her absence. The betrothal comes when the young farmer tries to comfort the heroine in her loss. The film, in progressive steps, shows the desert, plowing, leveling, irrigating, seeding, harvesting, and threshing, and in the final chapter, two years later, in the new home, there is a baby.

These films are to be shown in daily lectures at the Panama-Pacific Exposition and should serve to acquaint the public, not alone with the activities of the Service, but also the opportunities for homemaking in the West.

After the Exposition is over, they will be useful in the lectures which have become an important function of the publicity work of the Reclamation Bureau.

The War and Navy Departments are entitled to special mention in connection with the utilization of the moving picture. Orders are about to be placed for more than 100 projecting machines which will be installed in numerous forts, in the field and on several battleships. Soldiers and sailors are to enjoy the same films which to-day are viewed in every city and

town in the world, the service to be obtained through the regular exchanges. Films will be used also for educational purposes in connection with the training and fitting of the men for their various duties.

Excellent film was obtained last summer by several bureaus of the Department of Agriculture, by the Bureau of Mines, the Geological Survey and Life Saving Service.

The activities of the Government in Alaska are quite fully portrayed on several thousand feet of film.

The presentation of these films at the Panama-Pacific Exposition, and later, before popular audiences throughout the country is bound to make the general public more familiar with our Government and its many active functions.

The Therapeutic Uses of Preparations of the Ductless Glands—I*

Notes on Experimental Investigations of Undoubted Future Value

By Robert G. Torrey, M.D.

In the recent work in the realm of physiology there are few efforts which stand out as possibly of striking importance. Some years ago the theory of anaphylaxis was advanced by Poirtier and Richet, and their hypotheses have to a large extent been supported by subsequent investigation. The benefit already attained by the practical application of their theories is incalculable. More recently the work in the von Noorden clinic, particularly by Eppinger and Hess, holds a wealth of suggestion and has already borne fruit in the clinical field. Countless investigators are now working on the problems presented by the ductless glands—their interrelationship and the physiological effect of their activity in health and in states of disturbed function. The relationship of the ductless glands to the nervous tone is not as yet well understood. It seems definitely established that the pancreas produces an internal secretion which acts as a sympathetic depressant; that the chromaffine system as a whole acts as a sympathetic stimulant, or at least as an activator of certain portions of the system; and that the thyroid and hypophysis both in some way inhibit the activity of the pancreas in its nervous effect. This whole subject is so shrouded in doubt, however, that the theoretical side will not be considered here, this paper being limited to a discussion of the therapeutic experimentation which is being attempted with the ductless gland preparations.

Much of this work is pure speculation, much of it doubtless altogether useless, but time and experience will certainly extract some facts which are valuable and which can be shown to rest on a solid foundation. In attempting to put these theories to practical therapeutic use, the broadening of the field of endeavor depends on the practicing physicians. Those who are acquainted with these theories will be on the alert to recognize many interesting conditions which would otherwise escape observation.

THE ADRENAL GLAND.

The adrenal gland or suprarenal body is of all the glands the one about which the most accurate information has been acquired. The isolation of an active principle of a definite chemical nature has made possible experimental work which is more exact than is usual in dealing with animal substances.

The suprarenal body is composed of two portions, morphologically, chemically, and physiologically distinct. The medullary portion contains chromaffine cells related to the nervous system, while the cortex contains cells which stand in relation to certain cells of the sex glands. It is possible that in administering extracts or preparation of the suprarenal gland we have two distinct effects produced—one the result of a medullary substance which activates or stimulates the terminals of the sympathetic nerves. Most of the known action of the glandular extract can be attributed to this factor, including vasoconstriction, hyperglycemia or glycosuria (due to action on the sympathetics of the liver), pupillary reaction, and relaxation of the bronchi. Apart from this action, which may be directly chemical in nature, we have to consider the action of the cells of the cortex.

Animal experimentation is a rather uncertain index of the physiological effect of adrenalin on the human being, as the results of its administration vary a great deal in different species; also the effect is subject to wide variation, depending on many factors, such as nerve depression, as by drugs, muscular relaxation, etc. For instance, adrenalin will cause a marked contraction in a vessel which is relaxed or dilated, while if the vessel is already in a state of good tone there will be little or no effect shown. A small dose may produce a result entirely different from that produced by a larger dose.

As is well known, in the human body adrenalin administered intravenously causes a marked but transient rise in blood-pressure due to contraction of the peripheral arteries. It does not, however, constrict the coronary arteries, but probably dilates them. Its effect on the heart depends on the activity of the vagus, and this is an important factor in determining the extent

of the blood-pressure rise. The bronchi are markedly relaxed by its action, and peristalsis and digestive activity are decreased. The mobilization of sugar is increased with a resulting hyperglycemia or glycosuria. Cannon calls the service of the adrenal secretion to the organism an emergency function, increasing the efficiency of fatigued muscle and decreasing the clotting time of the blood. He also points out that strong emotional disturbances stimulate the discharge of epinephrin, continued worry leading to exhaustion and insufficiency of the gland.

In therapeutics its chief employment has been as a local vasoconstrictor, particularly in dealing with the membranes of the nose and throat. Injections of adrenalin have been found very useful in combating the vascular relaxation incident to shock, and while its action in this regard is very brief, it may prevent collapse in emergency. It is of value as a palliative measure in certain asthmatic affections, when an injection of from three to ten minims of the one-to-one-thousand solution either into a vein or deep in a muscle may terminate an attack almost immediately. While it gives prompt temporary relief in a number of these cases of bronchial asthma and of so-called cardiac asthma, it seems to have no permanent curative effect; but fortunately the susceptibility to the drug is not lost by repeated use, and increased dosage does not appear to be necessary. In antitoxin rashes, which are sometimes of serious moment, particularly if accompanied by edema of the glottis, it has been shown that an injection of adrenalin may altogether relieve the patient of symptoms within five or ten minutes. Here again the effect is not permanent and repeated doses may be necessary. I have seen acute circumscribed edema of the lip and of the tongue practically disappear within ten or fifteen minutes after the injection of ten minims of adrenalin solution into a vein on the back of the hand.

Adrenalin is recommended in the vomiting of pregnancy. Zuloaga has continued the administration of adrenalin in severe and otherwise uncontrollable vomiting from the second month of pregnancy to term, starting with ten drops every eight hours and later giving five drops every twelve hours, alternating with calcium. He is enthusiastic regarding this treatment.

Cavazzani has collected forty-seven cases in which a cure of osteomalacia is claimed to have been effected by systematic adrenalin treatment. He refers particularly to the assumption that deficient functioning of the adrenals interferes with normal skeletal growth, and discusses the question of etiology of rickets in this connection.

In the preparation termed adrenalin we have to deal with not only the chemical substance adrenalin or epinephrin, the product of the medullary cells, but also with an extract of the cortical cells, the nature and functions of which are totally distinct from those of the medullary portion of the gland. In some lower forms of life the so-called interrenal body, which corresponds to the cortex of the suprarenal gland in the higher animals, is indispensable to life, while the adrenal representing the medulla of the gland may be removed without fatal results. It is probable that in Addison's disease the destruction of the cortex is largely responsible for the condition, and also the cortex may be in question in osteomalacia and rickets. In the matter of influencing growth and development of the skeletal tissues and of the sex glands, the cortex is probably more important than the chromaffine cells of the medulla.

Many writers have considered the question of a general myasthenia, distinct from but frequently confused with neurasthenia, which is due to adrenal insufficiency and which yields to organotherapy (thyroid, pituitary, and adrenal being recommended).

I have noticed patients showing various grades of general myasthenia, low blood-pressure, poor skin circulation, and slight pains which seemed referred to the heart, who seemed benefited by the dried adrenal gland administered by mouth; also the pituitary gland has seemed of service; but thyroid must in these cases

be tried with great caution and carefully watched for bad effects.

In summarizing our present knowledge of the use of the adrenal gland as a therapeutic agent, it may be said that certain immediate and direct actions for which the medullary portion is responsible may be granted; on the other hand, there is probably an action due to cortical substances which has an effect on the nutrition of muscle and bone, and in certain diseases, as suggested, its effect may be sought by gland administration. In Addison's disease, where its use is theoretically indicated, the reports of success with adrenalin are not frequent or convincing.

Adrenalin is generally sold in one-to-one-thousand solution, which is reliable if fresh. It deteriorates rapidly, particularly if exposed to the light. The average dose is from five to ten minims of this solution injected well diluted into a vein or deeply into a muscle. The dried gland is also sold and seems to have a certain value when the cortical effect is desired.

The intravenous use of adrenalin is said to be contraindicated in organic heart lesions, nephritis, and arteriosclerosis. In animals it has been shown by Pearce that it is possible by large dosage to produce arterial degeneration, but its use in the ordinary dose subcutaneously has not to my knowledge been shown to be harmful, even when employed frequently and over long periods, as in cases of asthma.

THYROID.

Next to the adrenal, the thyroid is the gland of which we have the most knowledge chemically, though this knowledge is limited to very narrow boundaries. We know that iodine is a constituent of the gland and that in a measure its physiological activity corresponds to the amount of absorption of metabolized iodine. Iodine is held in combination with the colloid substance of the gland. Whether this combination forms a definite chemical substance is not established. Also the effect of this so-called iodothyrene in hyperthyroidism and Graves's disease is not thoroughly understood. Hyperplastic and hypertrophied glands contain as a rule less iodine than normal glands or colloid goitres. This does not mean, however, that less is present in the system, as the iodine content varies roughly with the amount of colloid substance, while the symptoms produced increase as the absorptive power due to the epithelial elements of the gland increases and with the power of taking up and metabolizing iodine, which seems greater as the epithelial cells are increased.

Different disorders due to variations in the gland are attributed to an excess or lack of combined iodine and the excess of uncombined iodine in the system. Thus iodine poisoning bears a certain resemblance to thyroid disease. Iodine which has been found to be beneficial in endemic goitres is distinctly injurious in acute goitres of the hypertrophic type, giving many of the symptoms of Graves's disease, including gastric and intestinal derangements, tremor, emaciation and muscular weakness. The administration of iodine subcutaneously or by absorption from the skin, will markedly raise the iodine content of the thyroid gland. Administered by mouth its effect seems to be less marked.

Histologically, the normal thyroid gland is composed of acini lined with a layer of epithelial cells. The acini are filled with a colloid substance. In a purely colloid goitre the acini are greatly enlarged, the cells flattened or atrophied, and the colloid greatly in excess.

In cases with a thyroid giving marked Graves's symptoms, we are apt to find a proliferation of the epithelial cells, and, instead of a single layer of lining cells, a thyroid adenoma with papillomatous outgrowths into the acini and proliferation of the lining layer. This overgrowth later tends toward atrophy. Thus in a patient with enlargement of the thyroid, even with exophthalmos and marked tremor, we may have to deal with a case of hypothyroidism, as truly as though we had a subject of myxedema or a cretin in question.

It is worthy of note that the hypertrophy of the gland may come on acutely and probably as a result of one

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