

**When is a Diagnosis
Not a Diagnosis?**

Some Information Regarding
X-Rays and X-Ray Machines

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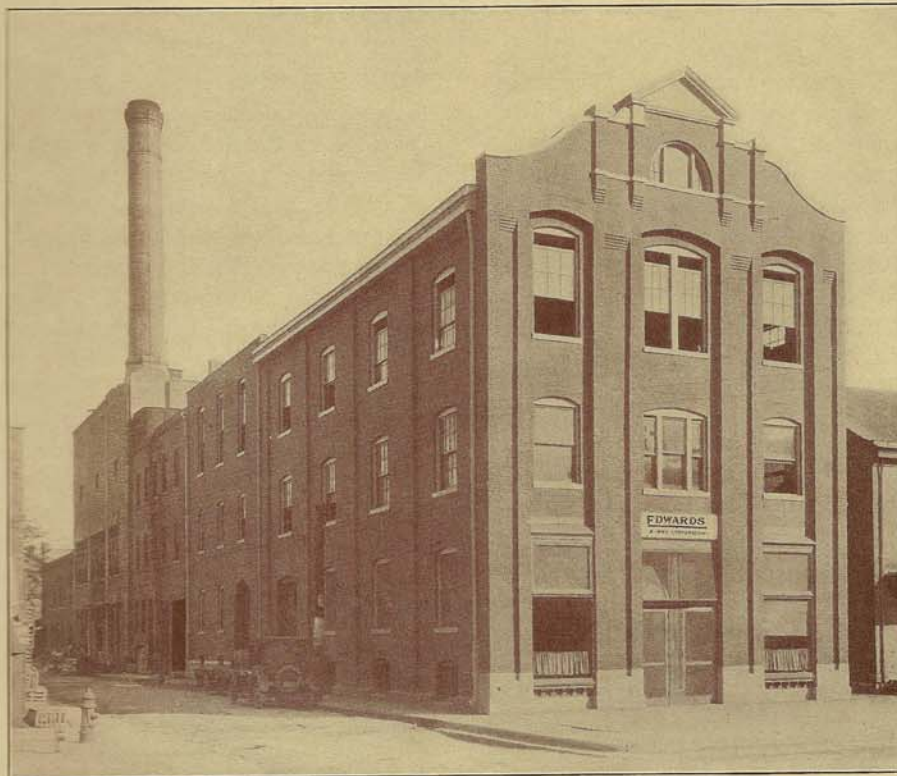
A Fee or Not a Fee.

INVESTIGATE Before You INVEST

THE more you know about the subject of X-Ray
the more competent you will be to select a
machine best suited to your needs.

We have tried to make this more than a catalogue—
in it we have explained such essential matters regard-
ing X-Rays as will enable you to exercise good judg-
ment in your selection.

The few minutes it will take you to read it from cover
to cover will be time well spent.



Our Motto

Our success today is built on the record of yesterday. We will be judged tomorrow by how we conduct ourselves and our business today.

Quality product, fairly priced and backed by honest dealings, courteous service and sound guarantee is the record of the past that has won for the Edwards X-Ray Corporation the success it enjoys today. Tomorrow and each day thereafter as it in turn becomes today, our business will be so conducted that we can always say the same.

The Foundation

THE EDWARDS has for many years enjoyed the leadership in Dental X-Ray equipment. There are more EDWARDS X-Ray machines in use in dental offices throughout the world than any other one make.

The EDWARDS Company designed the first Special Dental X-Ray Unit. Most of the practical features now in use on Dental X-Ray Units which effect SAFETY, ACCURACY, RELIABILITY and EASE OF OPERATION originated with the EDWARDS.

The EDWARDS Corporation holds patents on the original Over-the-Head Mobile Tube Arm for Dental X-Ray Units.

The Angle Indicator is an EDWARDS design. The Cone Shaped Pointer was originated by EDWARDS, and hundreds are in use on the old type EDWARDS X-Ray Unit. On our later models we discontinued the Cone Shaped Pointer in favor of the better Face Conforming Funnel with White Line Pointer.

The Automatic Resistance Cut-out is an EDWARDS invention. This feature protects the machine and the X-Ray tube from peak load injury and lessens out-of-order trouble.

The Hydraulic Time Switch, the safest, most accurate and practical kind for the purpose, is an EDWARDS design.

EDWARDS originated the first Daylight or Dark Box Developing Outfit ever marketed for use in connection with the X-Ray.

The High Voltage Guard which protects the patient, operator and others from accidental shock from the dangerous high voltage current is an EDWARDS invention, and is today an *exclusive feature* with the EDWARDS Mobile Tube Arm Model machine.

EDWARDS Safe-T-Model Unit is the first enclosed high voltage parts X-Ray Unit made with the tube tiltable and adjustable to angle positions.

With this record of having originated so many of the practical features that make the Dental X-Ray Unit the finished article that it is today, it is only reasonable and natural that the EDWARDS continues to be the *standard* in X-Ray Units, and that in the EDWARDS only is embodied all the practical features that make a Dental X-Ray Unit SAFE, DURABLE, EFFICIENT and RELIABLE.

When you buy an EDWARDS you are not buying a new product or an experiment, but a *standard* machine designed by practical men and built by a reliable company that has designed and built X-Ray machines since the early days of the Static—the first type of X-Ray machine.

EDWARDS X-Ray machines are in use in almost every country of the world, several thousand in the United States. Ask your brother practitioner what he thinks of his EDWARDS.



Why Not Be Honest?

WHEN a manufacturer, dealer or salesman claims or implies that any particular make of X-Ray Unit, using the Right Angle Dental Coolidge Tube, is more powerful, has more penetration or will X-Ray heavier parts, requires shorter exposure time, or will make better radiograms when operated at 10 milliamperes tube current at three-inch spark "back-up" (43,000 secondary or tube voltage) than other makes of machines of the same type, he is knowingly or unknowingly making a misleading, untrue statement.

The Right Angle Dental Coolidge Tube was made specially for dental X-Ray—it has a smaller focal spot than any other Coolidge Tube—this makes radiograms with finer detail than will a larger focal spot tube.

This tube was designed by Dr. Coolidge, of the General Electric Company, for maximum efficiency when operated at 10 milliamperes and 43,000 secondary or tube voltage (three-inch back-up). If operated at more milliamperage or higher voltage the tube will be ruined in a short time. When operated at the proper milliamperage and voltage these tubes usually give long and satisfactory service. When so operated, the power,

penetration, exposure time and results are the best and exactly the same, regardless of what make of machine is used.

EDWARDS Dental X-Ray Units are made to operate with the Coolidge Dental X-Ray Tube at exactly this correct voltage and milliamperage. There is no guess work—each and every machine is assembled completely, just as when used in the doctor's office, before it is sent to our shipping room. It is carefully tested and properly adjusted with large, accurate, laboratory volt, ampere and milliamperage meters. Should the supply current voltage in the doctor's office be normally above or below 110, or should it fluctuate during different times of the day or in the evening, means are provided in the EDWARDS machine to instantly correct or regulate the supply current voltage and to make it 110 before it reaches either the filament transformer or the high tension transformer—thus the correct tube milliamperage at the right tube voltage is maintained without changing the filament rheostat or other parts of the machine, which is properly adjusted at the factory for *maximum* efficiency without undue stress on the tube.



Danger

"Safety First" is a National Slogan

THERE are fewer railroad accidents because of the "Safety First" appliances such as air brakes, block signals, etc. In modern factories are found safety appliances and guards to prevent employes and others from contact with dangerous machinery, electric currents, etc.

Two Dangers

There are two dangers in connection with X-Ray machines—the danger from an over-dosage of X-Rays and the danger of shock from the high voltage electrical current developed.

Much has been said about the danger of the X-Rays—very little about the dangers of the electrical current. Practically all physicians and dentists know about the X-Ray danger; comparatively few realize the danger of the high voltage electrical current from the machine.

Why?

Perhaps for the same reason that when a prominent man dies or meets with an accident every one hears about it, while little is said if it is an ordinary individual. In the early days of X-Ray, among other individuals injured by the rays were several prominent doctors, and this danger became widely known. Many persons have been shocked by the high voltage current, some severely, a number killed, but none were prominent people, and the reports were not broadcasted.

The increased knowledge relative to X-Ray

dosage and the invention and employment of X-Ray insulating screens and shields have reduced this danger to a minimum.

Very little has been done to reduce the danger from the high voltage electrical current, notwithstanding the fact that the current generated by the modern Coolidge tube type machines is of a character much more dangerous than that from older type machines. The difficulty has been to adequately insulate wires and tube terminals and at the same time retain the necessary adjustability of the tube to the required positions.

Prior to the invention of the EDWARDS High Voltage Guard, we, like other manufacturers of X-Ray apparatus, were forced to rely on carefulness on the part of the operator to avoid accidents from our machine. Cautioning the operator unquestionably prevented many accidents, but one day a dentist was not sufficiently careful and was killed instantly by an electrical shock from an EDWARDS Mobile Tube Arm Dental X-Ray Unit. It might have happened with any other make of machine of the same type, in fact it is not the only death resulting from electrical shock from a Coolidge Tube Dental X-Ray Unit, though it is the only one from an EDWARDS machine.

It sometimes takes misfortune to stimulate increased mental and physical efforts. Shortly after this much regretted accident we succeeded in developing a means to prevent such accidents from our machines—the EDWARDS High Voltage Guard.

To fully appreciate the degree to which the EDWARDS High Voltage Guard protects from electrical shock, just seat yourself as the patient would be seated and have the operator or demonstrator of any adjustable Tube Arm Dental X-Ray Machine bring the tube into position for making radiograms, especially of lower teeth—particularly lower incisors.

Now note how close the radiator end of the tube is to you. Understand that there are 43,000 volts at this end of the tube during exposure. This current will jump several inches through the air; it is not even necessary to touch the radiator to get the shock.

Now imagine there is a film in your mouth so you cannot speak, that you are nervous, or that the film gags you, and you wish the operator to stop—remember the film in your mouth prevents you from speaking—what would you do? You would instinctively raise your hand as a signal to the operator. Note how this natural movement of the hand will bring it into contact or within sparking distance of the radiator end of the tube.

Have the demonstrator adjust the tube into position for radiographing lower incisors, then just imagine yourself a very fleshy person with a large waist line, or try crossing your legs and you will see that a shock is quite possible without even raising your hand to the radiator.

Now try the same experiment with an EDWARDS machine and you will see how the EDWARDS High Voltage Guard prevents such an accident.

We have demonstrated and written about this danger repeatedly for some time past. In so doing we have hurt the sale of X-Ray

machines to some extent, our own included, as no doubt some dentists who would have bought have decided not to use an X-Ray machine after having learned of this danger. On the other hand we believe the information on the subject, which we have spread, has made users of X-Ray machines more careful and has thus saved many persons from severe electrical shock and perhaps death.

We believe the dentist should fully understand what he is working with, so that he will exercise due care.

We also believe the benefit the public derives from the X-Ray much more than offsets the occasional injury, even though machines with no safe guards were used exclusively.

You might use an X-Ray machine not equipped with a High Voltage Guard for fifty years and never have an accident. You might seriously, even fatally, shock the first patient.

The motorist who tries to beat the train to the crossing may succeed a thousand times, or he might be killed the first attempt. He is taking unnecessary chances. You can drive a car and not take that unnecessary chance.

You do not need to take unnecessary chances with an X-Ray machine. The EDWARDS High Voltage Guard, an exclusive feature, with the EDWARDS Over-the-Head or Mobile Tube Arm Type X-Ray Machines, removes the danger.

The EDWARDS Safe-T-Model Machine is lower in price than the Mobile Tube Arm High Voltage Guard Model, but equally as efficient, adjustable to all positions, very easy to operate and perfectly safe.

What is a Circuit Breaker?

How Does It Operate? What is Its Function?

A CIRCUIT BREAKER is an electromagnetic switch. In operation it automatically opens and cuts off the current to an X-Ray machine or other appliance when more than the normal amount of current is drawn from the supply lines.

Its primary function is to protect the apparatus from possible injury from overload and save the time and annoyance of replacing blown-out fuses. The circuit breaker acts in less time than is required for the fuse to blow when the circuit is overloaded.

What would cause an X-Ray machine to draw more than the normal amount of current from the supply lines?

There are several causes, such as operating with more milliamperage than the machine was made for, or a short circuit. Most often the cause is a short circuit.

Does the circuit breaker in an X-Ray machine prevent the patient, operator or others from electrical shock in case of contact with the high voltage circuit to the X-Ray tube?

It does not.

Does it lessen the liability of serious or fatal results from such an electrical shock?

Yes, to some extent. When more current is passing through the person's body than is required to operate the tube, the circuit breaker will, if it is in good working order, cut off the current and thus possibly shorten the duration of the shock.

How long would such a shock have to continue to prove serious or fatal?

That is a question no one can answer. It is a serious matter for 43,000 or more volts with 10 milliamperes or more of current to pass through the human body, even for a small fraction of a second. It might be instantly fatal to some and it might not to others; that would depend on conditions and the individual. Some people can stand more than others, and it is hard to tell which is which beforehand.

In an EDWARDS Dental X-Ray Unit, is safety from the high voltage current dependent on a circuit breaker?

No. In the EDWARDS Safe-T-Model Unit there are no exposed high voltage wires. The EDWARDS *High Voltage Guard* on the EDWARDS Mobile Tube Arm Unit prevents accidental contact with the high voltage current.



EDWARDS X-RAY CORPORATION

High Voltage Guard

(Patents pending)

The voltage of all Coolidge Tube Dental X-Ray units is the same. The tube is the same. The relative position of the tube and patient is the same. The danger from a tube with an unguarded

radiator is the same. The EDWARDS is the one SAFE Modern-to-the-Minute Dental X-Ray Unit (imitated, but not equalled—imitation is a reflection of merit).



Note how the patient might raise the hand to contact with 43,000 volts from a tube with an unguarded radiator.



Note how the EDWARDS High Voltage Guard protects against such an accident.

Description

X-Rays can be generated only by passing a high voltage current (40,000 to 100,000 volts) through the X-Ray tube. All X-Ray tubes except the Coolidge Right Angle Dental Tube have this high voltage at both terminals or ends.

The Dental Tube has the filament terminal end grounded. The radiator end only is dangerous. It carries 43,000 volts at 60 cycle, sufficient to cause instant death. The design of the tube is such that this dangerous end is furthest away from the patient, yet despite repeated advice to operators to be careful, accidents from electrical shock, in some instances causing death, are becoming more frequent, the result no doubt of the increasing number of X-Ray machines in use.

How to safeguard from contact with the dangerous end of the tube and yet retain the desired flexibility of the tube support for ready adjustment of the tube at the various angles necessary for convenient and satisfactory radiographic results was a problem not easily solved by X-Ray manufacturers, though now that it is solved, it seems quite simple.

To surround or encase the radiator end of the tube with insulating material such as mica, hard rubber, etc., is neither practical nor safe, because—
First. The radiator must have free circulation of air.

Second. To insulate 43,000 volts would require insulating material at least one-half inch in thick-

ness. Even though it were the best and one inch thick, it would not be safe. Because of deterioration or possible unseen internal flaws, it might not properly insulate, and to depend upon such uncertain insulation would be more dangerous than no insulation. There are a number of other reasons why attempting to insulate in that way would not be practical or safe.

The Practical and Safe Way

We have succeeded in providing a practical and safe protection by first surrounding the radiator end of the tube with an insulating tube made of Bakelite.

Between the radiator and the Bakelite we leave liberal air space, the arrangement being such that a current of air is drawn through, thus helping rather than hindering the function of the radiator to carry off the heat from the tube.

We partially surround the Bakelite with a metallic shield or guard, leaving a liberal air space between them, this guard being interposed between the patient and operator and the end of the tube.

This metal guard is grounded through the tube holder and also through the grounded side of the transformer. Should the current puncture the Bakelite tube and jump to the metal guard even

at the same instant the patient might raise his hand and touch the guard, no ill results would follow. The patient would not experience the slightest shock. The current would go to the ground, not to the patient.

The principle involved is the same as with the street car trolley current. The current from the trolley wire overhead passes through the motor in the street car, through the wheels to the rails and ground. You can step on the street car rails without danger of shock.

The EDWARDS HIGH VOLTAGE GUARD is the most vital improvement in an X-Ray machine brought out in years.

You might operate your machine without this guard for years and through care not have an accident, yet, note from the illustration how without the guard a frightened or nervous patient might raise his hand near to or in contact with the radiator end of the tube and how the guard would prevent such contact. No matter what machine is used, the same danger exists by the unprotected high voltage end or ends of the tube being brought to within reach of the patient when some angle adjustments, especially of the lower teeth, are made.

The EDWARDS HIGH VOLTAGE GUARD is exclusively for EDWARDS machines. It is included without extra charge.



THE DANGER

REMOVED

This High Voltage Guard is one of the important features obtainable only with the EDWARDS X-Ray Units.

X-Ray Exposure Table

With 10 Milliampères at Standard 9" Target-to-Film Distance.
EDWARDS Coolidge Tube Dental X-Ray Units.

	Class "A" 125 to 150 lbs.	Class "B" 150 to 175 lbs.	Class "C" 175 to 200 lbs.
"Regular" or Slow Films.....	7 seconds	8 seconds	10 seconds
Upper Molars	4 seconds	5 seconds	6 seconds
Upper Cuspids and Bicuspids.....	4 seconds	5 seconds	6 seconds
Upper Incisors	4 seconds	5 seconds	6 seconds
Lower Molars	3 seconds	4 seconds	5 seconds
Lower Cuspids and Bicuspids.....	3 seconds	4 seconds	5 seconds
Lower Incisors	3 seconds	4 seconds	5 seconds

A young person requires a little less, and an elderly person a little more exposure.

If "Extra Fast" Films are used, divide above exposure time by four.

The exposure time with "Extra Fast" Films at 18" Target-to-Film distance is the same as with "Regular" or slow films and the standard 9" distance.

EXPOSURE TABLE for various parts of the anatomy, using Eastman Dupli-Tized Films, with and without Double Intensifying Screens. Average 150 pounds adult.

Part	Distance inches	With 2		Distance inches	Without	
		screens seconds	screens seconds		screens seconds	screens seconds
Fingers and Toes.....	15	1/5	1	20	1/3	1 3/4
Hand	15	1/2	2	20	3/4	3 1/2
Wrist	15	1/2	2 1/2	20	1	4
Ankle	15	5/8	3	20	1	5
Chest	15	3/4	3 1/2	20	1 1/4	6
Tibia, Fibula	15	7/8	4	20	1 1/2	8
Elbow	15	1	5	20	1 3/4	9
Knee	15	1 1/4	6	20	2 1/2	12
Shoulder	15	1 1/2	7	20	2 3/4	13
Head, Lateral	15	3 3/4	15	20	7
Head, Post-Ant.	15	7	20	15

Always use Double Intensifying Screens for heavy, dense parts. Limit exposure to 15 seconds for safety to patient and X-Ray tube.

Developing

"Developing should be for a fixed time, at a fixed temperature."—Eastman Kodak Co.

Developing is a chemical reaction. Under developing an over-exposed film, or over developing an under-exposed film does not improve the negative. "Development is a chemical process which has but one correct time of completion."

Use standard developing and fixing solutions, develop the required length of time, according to the temperature of the solution, and you will get the best results.

With fresh solution, at 65° F., five minutes is the correct time of development. For each 5° F. increase in temperature, the developing time should be decreased 33 1/3%. Have the developing solution as near 65° F. as possible. The temperature of solution should not exceed 70° F. Do not attempt to develop in solution over 75° F. or more than a few degrees under 65° F.

Fixing solution and wash water should be approximately the same temperature as the developer.

"It is strongly recommended that development be kept mechanical, for while a sense of judgment may be developed as to when a negative is "right," on the average such results do not compare with those obtained by insisting on development for a pre-determined time."—Eastman Kodak Co.

Cleanliness is essential for best results. Be careful that no hypo gets into the developing solution. Do not leave solutions exposed to the air.

Do not expect good results with old exhausted solutions.

If the negative is too dense, the cause is either over-exposure, over-development, or development in too warm a solution. If the negative is too thin the cause is either under-exposure, under-development, or development in too cold or too old a solution.

Edwards X-Ray Corporation

Indianapolis, Ind., U. S. A.

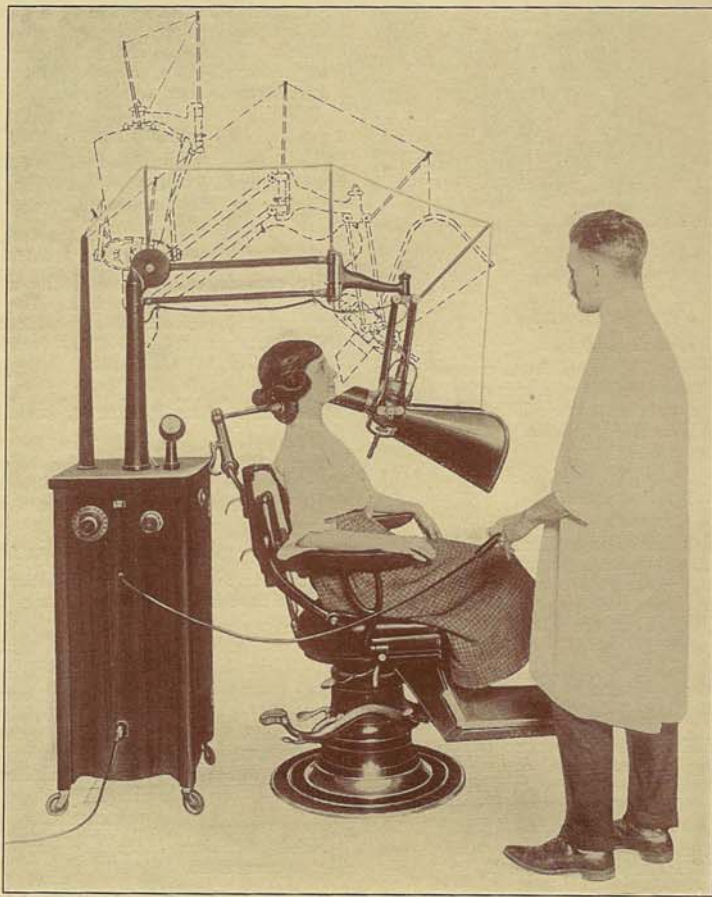
EDWARDS
X-RAY CORPORATION

Mobile Tube Holder

COOLIDGE TUBE

Dental X-Ray Unit

(Patents granted and pending)



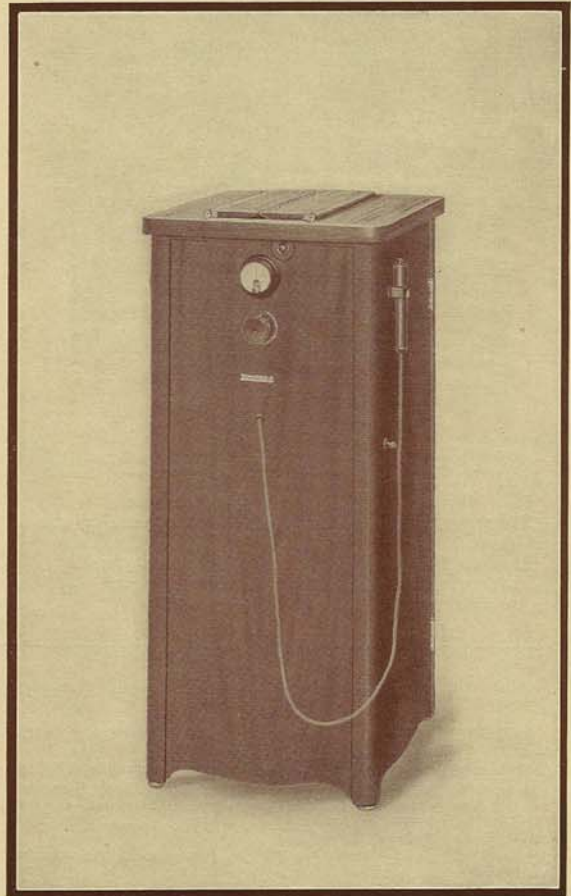
The machine with the High Voltage Guard

See description on two preceding pages

EDWARDS
X-RAY CORPORATION

Safe-T-Model
COOLIDGE TUBE

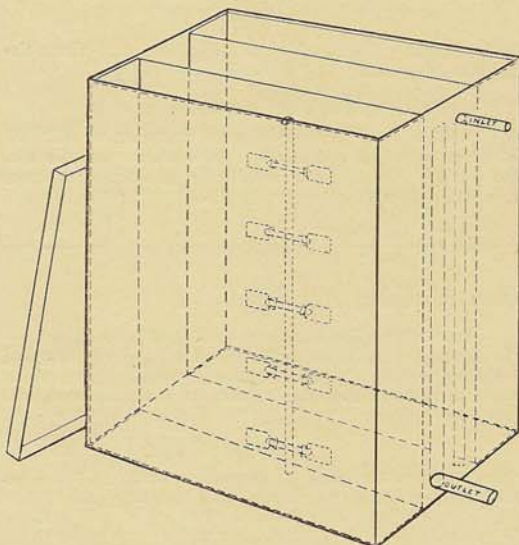
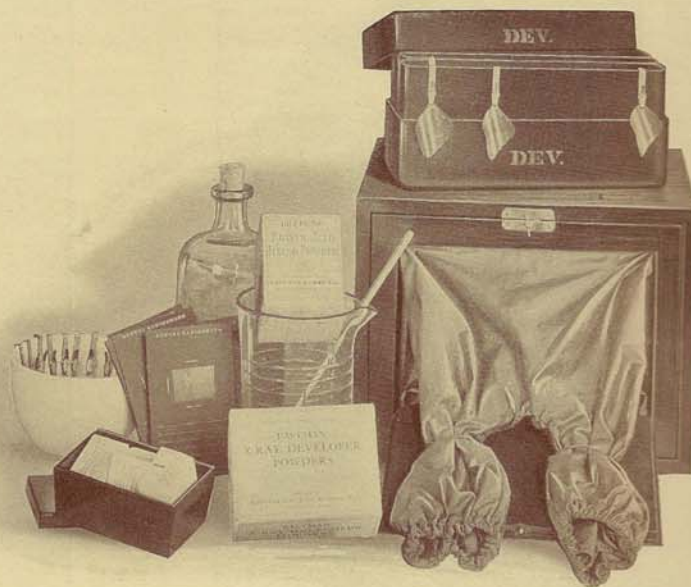
Dental X-Ray Unit
(Patented)



See description on next two pages

Daylight Developing Outfit

With this outfit, no dark room is required. The dark box is made of genuine mahogany or quarter sawed oak, finished to match the X-Ray cabinet. Furnished with either the tank set as illustrated or developing glasses as preferred.



Monell Metal Developing Tank

Use this instead of trays in the dark room. Develop one or several dozen dental films at one time. Also films or plates up to 8 x 10 size.

Outer tank made of galvanized iron, Developer and Hypo tanks of Monell metal. Wash space between solution tanks. Arranged with inlet and outlet for running water.

Developer and Hypo tanks, each hold one gallon. Renewal of solutions necessary only two or three times a year.

A Garden Hose and a Coolidge Tube X-Ray Unit

IF YOUR garden hose is the most suitable size, length and strength to carry a definitely determined quantity of water under normal water pounds pressure in a pre-determined length of time to most efficiently sprinkle to the furthest corner of your lawn, what would happen if the pounds pressure of the water supply dropped below or raised above normal?

If the water supply pressure dropped, both *quantity* and *force* of water flow from the nozzle of the hose would be lessened—there would not be enough water flow in the specified time nor enough force behind it to carry it to the desired spot on the lawn. You could put a larger nozzle on the hose and thus increase the *quantity* of water, but that would not increase but would rather decrease the *force*. It would not help you get the required amount of water in the elected time to the right spot on the lawn.

If the water supply pressure raised above normal, you could reduce the size of the hose nozzle and thus reduce the quantity of water flowing, but it would not reduce the abnormal pressure or relieve the undue stress on the hose.

Now suppose you had means of increasing and decreasing the pressure at the *end of the hose that connected to the water supply*. It would then be an easy matter to keep the correct quantity of water flowing at the right pressure, and there would be only the normal strain on the hose which it was manufactured to withstand without damage.

Now, just think of the Coolidge X-Ray Tube as the garden hose, the filament in the

tube as the hose nozzle, the patient's jaw as the lawn, the milliamperage as the water, and the supply current voltage as the water pounds pressure.

When the supply current voltage is normal, 110 volts, the secondary or tube voltage will be 43,000 (3-inch spark "back-up") and the milliamperage will be 10. This is the correct pressure (voltage) to cause the X-Rays to penetrate just right for X-Raying the teeth. The milliamperage (current) is just right to give the best results in the pre-determined exposure time, and there is no undue stress on the tube.

If the supply current voltage drops below 110 volts, there will be a proportionate drop in the secondary or tube current voltage and in milliamperage. Increasing the heat of the tube filament (automatically or otherwise) will increase the current (milliamperage), but will *not* raise the secondary or tube voltage (pressure), therefore will *not* restore the penetration. The result is fewer rays penetrate through the jaw to the film, the exposure time is prolonged, and not as good results obtained.

Penetration is governed by the secondary or tube voltage (pressure). Tube voltage representing 2 or 2½-inch spark "back-up" does not give the same results in the same exposure time as does tube voltage representing 3-inch spark "back-up," though the milliamperage (current) be the same.

When the supply current voltage raises above 110 volts, reducing the tube filament heat will restore the milliamperage to 10, but does *not* reduce the secondary or tube

is in ratio to the detail, sharpness of the outline and the contrast (gradation in light and dark area).

The smaller the focal spot on the target of the X-Ray tube, the better the detail and sharper the outlines in the X-Ray negative. Just as fine detail is obtained in photography by reducing the size of the diaphragm opening of the camera.

The Coolidge Tube used with EDWARDS Dental X-Ray Units has a smaller focal spot than has any other Coolidge Tube made.

Contrast in the negative is dependent on the correct penetration. Forty-three thousand volts through the tube (3-inch "back-up") is the right penetration for the most contrast in the dental tissue shadows. Sixty thousand volts through the tube (5-inch "back-up") produces X-Rays having too much penetrating power for dental tissues, and the negatives are flat and lacking in contrast.

The regular dental X-Ray unit designed especially for the purpose is easier to operate, easier to adjust to positions and has special advantageous features not found in the 5-inch or other machines.

The Dental X-Ray Unit requires less space than other machines.

The price is less.

The consumption of current is less.

No special wiring is necessary (except in rare instances), while with a 5-inch "back-up" or larger machine, special wiring is always required, which makes an additional cost of from \$50 to \$250.

Almost one hundred per cent. of dentists who have the regular dental machine are pleased with their purchase, while a large per cent. of those who buy the larger or more powerful machines learn their mistake too late and want to trade them in for the machine that was especially designed for dental X-Ray requirements.

It is possible to shoot squirrels with a cannon, but a rifle is more accurate, convenient and economical, and you will get more and better squirrels with less damage to the tree.

It is possible to radiograph the teeth with a physician's type machine, but you will get better results with a machine made for the purpose.



A Fee or Not a Fee

(Apologies to the Shades of Hamlet.)

"What fee should a dentist charge for an X-Ray picture?"

"If he is running a tooth photo gallery, fifty cents is an overcharge.

"If he is a competent dentist, specializing in X-Ray, the charge for a radiographic examination and diagnosis of the mouth condition should be in proportion to his ability, time required and financial ability of the patient to pay for competent service rendered.

"If he is a dentist, practicing Health Dentistry, he should X-Ray all the teeth of every patient and make no specific charge for the X-Ray part of the examination in arriving at a diagnosis."

"But I do not need dental radiograms in all cases in making my diagnosis."

"Perhaps not, but you do in seventy-five per cent. of cases if you make a diagnosis worthy of the name. The percentage of cases you diagnose correctly will be in proportion to the percentage of cases in which you make a complete X-Ray examination of the mouth, not of one or two teeth, but of all the teeth."

"But that will take too much of my time and I can't afford to do it."

"You cannot afford not to, doctor, and you cannot practice Health Dentistry unless you do."

"Do you mean I should do all that extra work and get nothing for it?"

"No, but you can not afford to make a *specific* charge for the X-Ray (except in cases referred to you by another dentist or a physician for X-Rays only), furthermore, such practice interferes with the practice of Health Dentistry."

"I do not understand. You say I cannot afford to charge, and I know I cannot afford to give my time for nothing."

"Come sit down for a few minutes, doctor, and listen."

"Dentistry as a profession means more today than it did ten or twenty years ago. Then dentistry was considered principally as mechanical work on the teeth. Today the dentist has the same standing and the same responsibility as the physician as a guardian of the public health. Physicians know, dentists know and the laity knows that physical ailments are in many instances caused by oral infection and that the road to health is by proper dental remedial means.

"The dentist today is expected to practice Health Dentistry. The first step in Health Dentistry is a correct diagnosis of the case based on a thorough examination. The X-Ray is a necessary adjunct to a thorough examination. The X-Ray is a great help as a guide to what dental remedial measures are necessary, how best to apply them and to know when they are properly applied.

"Much is expected of the dentist today, but not too much. It is not expected that every dentist is capable of the best dental work that can be done. It is expected that every dentist do the best that he is capable of doing. No dentist is so capable or none so incapable but what he can make a more accurate diagnosis and do better dentistry in the light of X-Ray guidance than when groping in the darkness of doubt.

"The wonderful progress made in dentistry

in the last few years rests on the foundation of the X-Ray. The X-Ray brought to light the pathological and abnormal conditions hidden beneath bone tissue, root canal fillings, crowns and bridges, which led to a better way of doing these things. Progress in every branch of dentistry has been stimulated and helped by the X-Ray.

"The X-Ray is no longer a thing apart from dentistry to be charged for at so much per picture. It is a necessary part of a dental examination, no dentist can be even reasonably sure of his diagnosis without the X-Ray any more than can a physician make even an approximately thorough examination and diagnosis without examining the urine.

"If in your practice it is your custom to charge for examination and diagnosis, then improve your examination and diagnosis with the X-Ray and charge accordingly—but make the charge for the professional services rendered and not for X-Ray pictures at so much per.

"If you have a large practice, all you want or can attend to, then use the X-Ray as mentioned, with its aid you can and will do better dentistry, then advance your fees accordingly for the better service rendered and increase your income with less work. People are willing to pay for Health Dentistry when they know they are getting it. The amount of the dental fee within reason is limited by the ability of the dentist and the quality of service rendered the patient.

"If you do not have all the practice you want or can properly attend to, just try using the X-Ray as outlined for 90 days. X-Ray the entire mouth of every patient coming to you, the patient will be favorably impressed and will appreciate the thoroughness of your examination. You will be surprised at the

amount of unsuspected dental work revealed. A patient that comes to you for a simple filling will in many instances be found in need of many dollars worth of dental work.

"Keep a record of this extra dental work secured through the use of the X-Ray and you will soon realize that the X-Ray is returning you a big dividend on your investment, time and small operating expense.

"It is not hard to get the dental work to do when you can show the patient the film evidence of the mouth condition.

"Follow this method and you will soon build a large and profitable practice.

"If you want to charge for the X-Ray, don't make it a separate charge, but include it in the bill for professional service rendered. You can do this in cases where a considerable amount of dental work is done. In cases where only a small amount is found, charge for the dental work and forget the X-Ray charge.

"If you are busy only half the time you would have more than you could do and at better fees if you did all the dental work needed in the cases now passing through your hands.

"It pays to practice Health Dentistry and you cannot practice Health Dentistry without the X-Ray."

"Well, what you say sounds alright, but I will let the other fellow try it out."

"The other fellow has already tried it out, doctor. The plan has been thoroughly tested and proven practical in every way and in nearly every class of practice—not a single dentist who has tried the plan would now think of going back to the old way—all are enthusiastic. One reports he had a large practice, now he waits on fewer patients but has increased his income 50%.

"Another, a very capable dentist but poor business man, whose practice never exceeded \$2,500.00 a year, has increased his practice in one year to over \$6,000.00, notwithstanding a general business depression. He will have a \$10,000.00 practice within three years.

"It matters not whether your income from practice is \$2,000.00 or \$20,000.00 a year, you can increase it under this plan and do so ethically and justly—because it is the foundation of Health Dentistry."

"Well, I am practicing Health Dentistry now. I send all cases I think need to be X-Rayed to the X-Ray laboratory."

"That's just the point doctor, you have X-Rays of only cases you suspect. The great value of the X-Ray is what it reveals in ordinarily unsuspected cases. When you use the X-Ray in your own office, which you eventually will, just check up the cases that have passed through your hands for several months preceding, you will be surprised by the number of unsuspected conditions revealed and which you had overlooked."

"Apparently you do not approve of X-Ray laboratories?"

"Of X-Ray laboratories that are in charge of an incompetent and conducted like a picture gallery, No. Of the competent X-Ray specialist, Yes. He is a benefactor to humanity and to the dental profession; his field of usefulness will increase as more and more dentists use the X-Ray."

"But he cannot succeed if every dentist has an X-Ray machine in his own office."

"The average physician can make a practically correct diagnosis of the majority of

cases, but if he is a conscientious physician he will call an expert diagnostician in consultation when he has a difficult, complicated case. The larger percentage of conscientious physicians there are in a locality the more often is the expert diagnostician called in consultation.

"Every dentist can in a short time learn to make a practically correct interpretation of a large per cent. of X-Ray negatives. In complicated or doubtful cases he will send the patient to and consult with the expert X-Ray specialist. The more dentists that have X-Ray machines and the more cases that are X-Rayed the greater number of difficult and complicated cases calling for the expert's assistance in X-Ray diagnosis will be found. His usefulness and his income will increase proportionately.

There are a number of competent X-Ray specialists and there is plenty of room for more. These men have done and are doing much for the dental profession and for humanity. There is one especially whose name will live, who has carved his place in the hall of fame, whose portrait should hang in a place of honor in the assembly room of every Dental Society in the world. He has done much for his profession and for the well being of mankind. He has unselfishly devoted the best of his life to dental X-Ray research. To him more than to any other one man is the profession and the world indebted for the development of dental X-Ray and the benefit resulting therefrom to humanity. May his star never dim nor his income diminish. All honor to Dr. Howard R. Raper."

Have you merely glanced through
this catalogue or have you read it?

It's worth while reading
if you are using or going
to use an X-Ray machine

