

The large number of sightings of unidentified objects and lights in the sky has inspired a considerable amount of serious study, as well as popular speculation. Books and magazine articles have appeared concerning the "flying saucer" phenomena, involving a range of explanations from mirages to extra-terrestrial space ships.

The U. S. Air Force investigated saucer sightings for several years and came to the conclusion that most of them could be explained in terms of natural objects such as weather balloons, mirages and kindred optical phenomena, hallucinations and hoaxes. There did remain, however, a residue of sightings which defied such explanation and seemed to support the theory that this earth is being visited by emissaries of some extra-terrestrial civilization.

At the time when the flying saucers first captured public attention the writer was engaged in a part-time investigation of the behaviour of electro-magnetic fields, and it seemed just possible that, if the saucers actually were space ships, they might be using the very magnetic principles being studied. Authority was requested and obtained to set up a classified project within the Department of Transport to pursue this matter further.

The project was classified for several reasons. The exchange of information with other parallel classified projects could thereby be facilitated; scientific personnel working along unorthodox lines prefer to work in camera, until their results can be proven; and furthermore, in the event that a new technology should be uncovered, its implications would have to be carefully assessed before pertinent

information could be made public.

Work to date appears to confirm that these investigations are on the right track, and that there does exist a new technology in magnetics, - whether or not the flying saucers are space ships, or even real objects at all.

The basic premise of this theory is that a magnetic "sink" or source can be produced into which (or out from which) will flow magnetic flux at a controlled rate. The passage of this flux through electric circuits will induce in them ordinary electric currents, and produce on these circuits powerful reaction forces. Such currents and forces may be handled by conventional electrical engineering techniques. The only unorthodox feature is the magnetic sink (or source), the basic principles of which are now being studied.

It is curious to note that most of the descriptions of flying saucers are in accordance with the design which would be required to exploit a magnetic sink. For example, they are described as generally round, disc shaped, and with a small central cabin. The sink could be located in the cabin and the flux flow through the rest of the ship would induce a current in it which would react with the moving field producing it, resulting in a force having a substantial component at right angles to the disc. Support and propulsion of the ship would then be a combination of this resultant force, the airfoil action of the ship as a whole and forces resulting from eddy currents in the body of the ship.

Navigation of such a flying saucer would be a very complex process indeed. The tilt of the saucer to get the reaction force in the wanted direction most probably would result in aerodynamic forces in some other direction. Interaction between the field of the saucer and the earth's field would tend to make the saucer line up with the external field and for which compensation would be required. Navigation, therefore, would resolve into a determination of these and possibly other forces and their relationship to the direction in which it was desired to travel. It is doubtful if a human pilot could manage to do all this rapidly enough to manoeuvre a saucer at the speeds and through the intricate motions which have been observed. It is therefore highly probable that the saucer control systems are semi, if not fully automatic, and most likely a push button effort.

There are many reports of saucers hovering in one spot for some time. For a saucer designed to operate as described, this would probably be its easiest manoeuvre, as it would be necessary merely to adjust the flux flow and tilt until the resultant forces exactly balanced the weight of the saucer and the turning moment due to the earth's field. There would be little or no aerodynamic problem in this case.

The only sound which would be expected from such a saucer would be a swish as of any object passing through the air, and with proper streamlining this could be reduced to a negligible amount. There would, of course, be no noise such as engine roar or propeller

beats as are usually associated with our aircraft.

Since the lift on such a saucer depends on the induction of a large circulating current in the disc shaped body of the ship, it follows that when much energy is being expended the metal shell could become visibly hot. Furthermore, the manner of inducing this circulating current would produce high potential differences between parts of the ship which, at high altitudes, could produce visible corona.

Another factor which could contribute to the luminosity of saucers is associated with the primary energy source. This is tied in closely with the generation of the magnetic sink (or source). The primary source of power involves the direct conversion of mass to energy and would be accompanied by strong gamma radiation, of quite sufficient intensity to produce visible ionization in air. Such radiation would naturally be directed away from the ship as a safety measure for the occupants.

Application of these same basic principles could also be made for craft of other configurations, each designed to do a particular job. At this stage of development it is difficult to say if there would be any size limitation to the equipment. It might be possible that extremely small remote controlled units exist, and also gigantic ships. In fact, there seems to be considerable observational evidence for the existence of both extremes.

Much of the foregoing may appear as speculation, but it is reasonably well confirmed by the many saucer sightings, and is in line with a new technology in magnetics now being developed. Even if the flying saucers should turn out to be entirely mythical, which is highly improbable, we still have to thank them for pointing the way to what may eventually prove to be one of mankind's greatest triumphs over nature, namely, a space travel technique and an energy source to make it possible.

HYPNOTISM

By

Wilbert B. Smith

1932

HYPNOTISM.

The Human Mind.

Before a clear knowledge of hypnotism is possible it is necessary to know something of the workings of the human mind. There are two major divisions to the human mind, the conscious and the subconscious. The conscious is that part of the mind which we recognize as ourselves; the subconscious is the vast remainder. All motor functions, habits, abilities, and such like, as well as the greater part of the memories are in the subconscious. All preceptions must pass through the subconscious before reaching consciousness, if they reach it at all, and vice versa, all commands from the conscious must pass through the subconscious before expression as physical action. The subconscious is thus the connecting link between the conscious, or waking mind and the body, and as such can exercise a censorship on all thoughts passing through it in either direction.

The Hypnotic State.

Normally there is a very close bond between the conscious and the subconscious, but in the hypnotic state this bond is reduced to a mere thread or severed entirely. When this takes place the conscious is, in effect, a mere observer and as such can exercise no control over the subconscious. Accordingly the subconscious is left exposed to the suggestions of the operator, and so long as the suggestions do not offend the subconscious they will be implicitly carried out. It must be remembered that hypnosis is not sleep, although the word sleep is used for convenience, but is really a state in which the conscious mind is

dissociated from the subconscious and so loses control of the body.

Principles of Inducing Hypnosis.

The process of separating the conscious from the subconscious is known as hypnotism. The method used to induce hypnosis is relatively unimportant so long as a few important principles are adhered to. The first of the requirements for the production of the hypnotic state is concentration, that is, the subject must concentrate on the approaching sleep or trance to the exclusion of all outside interference, which brings up the second point, namely, the reduction of all interference to a minimum. There should be nothing happening within the subject's range of perception which would distract his attention. The third point is that the suggestion and idea of the oncoming sleep should be so predominant that it overshadows all other suggestions and ideas. Confidence in the ability of the operator may be listed as a fourth point, and a general willingness to be hypnotized on the part of the subject as a fifth.

Methods of Inducing Hypnosis.

As regards the actual procedure, each operator usually has his own which he regards as superior to others. Possibly the simplest is to have the subject gaze steadily at a small bright object held slightly above the eye level, the subject being seated comfortably on preferably a straight-backed plain chair. While thus gazing at the object the operator continuously tells him in a soft monotonous voice that he is growing sleepy, that his eyelids are heavy, that he finds it more and more difficult to stay awake. After a few minutes of this procedure

the subject's eyes take on a glassy staring look or may close. When this happens the operator tells the subject firmly that he is sound asleep, and that he will be unable to awaken until told to do so. Usually in this condition consciousness is not completely dissociated, but the sleep may be made more profound by applying suggestions to that effect or by successive hypnosis repeated at intervals of a few minutes.

Following is the procedure which has been used extensively by the writer and found to be highly successful both for entertainment and research. The subject is first given two tests to enable the operator to estimate the ease with which it will be possible to hypnotize him. In the first test the subject is told to close his eyes, roll his eye-balls upwards and backwards as far as possible and keeping them in this position, try and open his eyes. As soon as the subject is convinced that it is impossible to open his eyes under such circumstances the second test may be applied. In this test the subject is told to stand stiffly erect, feet together, hands at sides. The operator tells him that he is going to pull him over and that he will be unable to resist. The operator then stands directly in front of the subject, holding one hand near the subject's face about eye-level, and makes a slow motion of pulling him over, the subject meanwhile gazing intently into the operator's eyes. With a good subject the pull may be quite sufficient to overbalance him. The subject is next told to sit on a chair, with feet resting flat on the floor and hands on the knees. The operator then stands in front of him and slowly describes small circles with his hand about eighteen inches from the subject's eyes

and slightly above them, meanwhile telling him firmly that he is sleepy and that he is going to sleep. The operator may count to some number such as twenty, telling the subject that he will be sound asleep when that number is reached. After the subject has gone into a slight hypnosis the sleep may be intensified by applying the appropriate suggestions.

Stages of Hypnosis.

Hypnosis is not divided into any definite stages or degrees, there being a uniform gradation from normal waking to the deepest trance. The operator ^{learns} ~~recognizes~~ by experience only how to recognize the depth of sleep. A safe procedure to follow is to start with a simple suggestion or command, and follow it with others more complex or absurd until the subject shows signs of resisting or rejecting them.

Suggestions.

When giving suggestions to hypnotized subjects it is well to remember the following rule. In the normal waking state the effectiveness of a suggestion varies inversely as it's directness. That is, if the hypnosis is slight make the suggestion reasonable and not too direct. In deep hypnosis the effectiveness varies directly as the directness. Accordingly, if the hypnosis is deep, make the suggestion as direct and emphatic as possible. It should be noted that failure of execution of a suggestion by a subject seriously undermines the confidence in the ability of the operator, therefore no suggestion should be given unless the operator is reasonably sure that it will be obeyed.

Illusions and hallucinations are not possible in slight hypnosis. Sometimes, however, if the suggestion is not too

unreasonable, the subject may go through the requisite motions but declares afterwards, when the memory is restored, that he merely did what the hypnotist wanted him to do, that there was no illusion or hallucination about it. It is seldom that a first sitting results in deep enough hypnosis for the production of such phenomena, but if successive sittings are carefully handled the hypnosis may become deep enough at the third or fourth sitting.

People Susceptable to Hypnosis.

As to who are hypnotizeable and who are not, the following may be said. Practically any normal, sane, sober person can be hypnotized. Those who cannot be readily hypnotized are; lunatics, feeble-minded, inebriates, small children, excessively old people, and people with an anti-hypnotic complex. Most of the refractory subjects fall under the last heading, and if time and patience are available to break down this complex, it is usually possible to hypnotize them also. Generally speaking about four out of every five prospective subjects are readily hypnotizeable. Susceptability to hypnosis is independent of sex, but as a rule women show better obedience to prerequisite conditions than men.

Hypnotism in Medicine.

Hypnotism is quite valuable in the treating of nervous or functional disorders, but such treatment should only be carried on by or under the supervision of a competent physician, as it is easy to aggravate the disorder instead of curing it. Toothache can be removed by hypnotism as can practically any other ache or pain, but such treatment should not be substituted

for the proper medical care. Indigestion and kindred complaints yield readily to the use of hypnotism along with appropriate medicine. Such small but annoying complaints as warts and cold sores can be cured by hypnotism, sometimes aided by drugs. The chief objection to the use of hypnotism in medicine are, the time required to produce a sufficiently deep hypnosis, and the uncertainty of the exact result which will be obtained.

Entertainment.

Hypnotism, if discreetly used, will provide a great deal of highly interesting and instructive entertainment. To the uninitiated it represents a fearsome power akin to black magic, but a little investigation shows it to be merely the operation of a few well-founded psychological principles. The dangers of hypnotism have been greatly exaggerated, possibly for the sake of the effect produced. No person when hypnotized will do anything which he would not do under appropriate circumstances while awake. At times a hypnotized person is considerably safer performing some dangerous action than would be a normal person, for example, walking the cornice on a tall building.

Many interesting phenomena may be displayed in quite slight hypnosis. As an example, a small object is placed in the hand of the subject, the hand is closed and the subject told that he cannot open it. It is often highly amusing to see the lengths to which the victim will go to open that hand. A very effective demonstration involves the loss of memory. The subject is told that when awakened he will have forgotten his name. After awakening he is the cause of much mirth by his obviously desperate attempts to recall the lost name. He may even produce

such articles as his drivers licence in a vain attempt to remember. A word or touch from the hypnotist is sufficient to restore the lost memory. Rigidity of the muscles is also interesting. The subject will remain apparently indefinitely in some uncomfortable or absurd position, without the slightest motion or sign of tiring.

Deep hypnosis displays the hypnotic phenomena to best advantage. Subjects thus hypnotized will hop about the floor croaking merrily, actually believing that they are bull frogs. The subject may be assured that he is Abraham Lincoln, whereupon he will deliver a very creditable speech. In deep hypnosis any part or all of the body may be rendered insensitive to pain. Pins may be stuck into the flesh without the subject even being aware that such is being done. A coin touched to the skin, the subject being told that it is a red hot poker, will cause real pain, as is usually demonstrated by the yell that results, the subject afterwards rebuking the hypnotist for burning him while asleep.

Precautions.

The following precautions are worth noting. Don't hypnotize anyone who is physically not fit, except under medical supervision. Don't hypnotize children; a good age limit is sixteen years. Don't have the subjects do anything which is likely to cause harm to them or others. The operator should completely understand what he is doing before attempting it. Always take extreme care to remove all suggestions likely to be retained, as such can cause considerable annoyance if not actual damage. At any sitting there should always be present people

who are not taking part in it except as onlookers, and a good idea is to have one of them write up a complete record of the sitting and the rest sign it. Such records should be kept for future reference, as they are often very interesting and sometimes quite valuable from the research point of view.

REFERENCES.

Suggestion And Auto-suggestion. - - - - Charles Baudouin
Outline Of Abnormal Psychology. - - - - McDougal
Principles Of Abnormal Psychology - - - Conklin
Abnormal Psychology. - - - - - - - - Coriat

APPENDIX.

CASE 1.

Mr. V. was hypnotized by means of the fixation method on the second attempt and it was suggested to him that he was in the tropics and that he was very warm. Immediately he removed his coat, then his vest, then his shirt, and was on the verge of removing his trousers when he was told that he was at the North Pole and accordingly very cold. 'Goose-flesh' appeared and he hurriedly donned his clothes, complaining continuously of the cold. He was next told that he was back in ——— and that it was necessary to sing Mr. Noah, which he did, quite lustily. He was then awakened, after it was suggested that he forget all that had transpired during the trance. The sitting covered some twenty minutes, but Mr. V. declared after awakening that he had slept less than a minute and had absolutely no memory of the events of the trance.

Case 2.

Mr. S. was hypnotized and told that it was time to get up. He went through the requisite motions of getting dressed, interspersing them with sleepy comments about 'staying up too late last night'. He was then told that he was a radio operator (his normal profession), and that it was time to start up the station. This he did with remarkable naturalness, making his usual remarks about the motors being cold, etc. He even went through the motions of putting on a phonograph record, after making the opening announcement to an imaginary microphone. When awakened, he had no recollection of his actions, though no suggestion to that effect had been given.

Case 3.

Miss C. was hypnotized and a suggestion given that there should be no feeling in her right arm. Several pins were then stuck into the flesh without the slightest sign of pain. A suggestion was next given that after awakening, when she heard the operator cough she would do the Highland Fling. Amnesia was suggested and the subject awakened. At the prescribed signal Miss C. showed a deal of restlessness, but considerable insistence on the part of the operator was required before she obliged with the Highland Fling.

Case 4.

Miss C. and Miss M. were hypnotized together and were told that upon awakening they would have forgotten their names. Amnesia was suggested and they were awakened. Neither young lady could remember her own name but could readily recall the other's; nor would they respond to their names if addressed by a bystander. Miss C. produced her drivers licence and a club card but at a suggestion from the operator, was unable to read the writing. Miss M. was told that she could write her name, which she did, but backwards! The lost memory was restored by a 'pass' made by the operator, and again removed in the same manner. This was repeated several times, after which the subjects were assured that they were again perfectly normal.

O F F I C I A L R E T I C E N C E

W.B.Smith

I am often asked if I can give a reason for the official reticence in the matter of flying saucers. I am afraid that there is no single reason, only a combination of circumstances, each contributing in its own way to a situation which would be ludicrous if it were really not so pathetic.

The current interest in flying saucers dates from the Kenneth Arnold sighting in 1947. At that time the gentlemen of the press seized upon the item and it was featured far and wide throughout the world, with far more emphasis on its news value than its significance. This was followed by reports of many more sightings and a style was set. Soon everyone was stylish and on the band wagon; jokes and cartoons were created and published and the whole matter lost what little perspective it had and arrived at the public consciousness completely out of context and misrepresented. Consequently it became practically impossible for a casual enquirer to sort out the facts from the fictions, legends and speculations which mushroomed up and became the "literature" of the subject. After foundering a while in the morass most people just gave up and relied for their opinions

on some authority.

To most people the government is the final authority but they seldom realize that government is made up of a large number of people who are experts in their own fields but very much laymen in other fields. If, within government, there is no bureau within which a new situation will fit neatly, it is entirely homeless unless and until a suitable bureau can be created. But the creation of a government bureau requires a definite act by the government, and the voting and expenditure of public funds, which in turn has to be justified publically. Consequently, when a situation develops such as the advent of flying saucers, it is unfair to expect an early answer from government. The best that a government can do under such circumstances is to make use of a "back door" arrangement with which we are all familiar, namely, the "classified project". But even this is a gamble in that it is predicated on the project yielding positive results with the answers all tied up in a neat little bundle, otherwise the project flops and slips into oblivion.

The United States tried this latter approach but it backfired, through a unique series of circumstances which I shall try to outline. Although I was in no way involved with the United States flying saucer investigations, I do know how these projects work and how they fit into the overall structure, so I feel that my analysis is valid.

Any project starts out with its initial directive or terms of reference from which it evolves its strategy and then works out suitable tactics. Since flying saucers were obviously in the domain of the airforce, and the vast publicity accorded them resulted in a deluge of enquiries and demands for an explanation of what was going on in the skys, the obvious course of action was for the air force to set up a project with a directive to look at this new situation and try and get them off the hook. With this sort of a directive the strategy was of course to gather actual sighting data and then rationalize it so far as possible. Since it was obviously convenient to classify the project, the tactics at once developed into a one-way pipe line, with all sorts of information going in and nothing coming out. This of course made many people unhappy and suspicious, which fact was seized upon, publicised, magnified, and built up into a sinister plot to keep the public in ignorance.

Within the airforce, as in any other large established organization, Parkinson's Law has been at work for some time and we find lots of chiefs but not too many indians. Every job, large or small, is invariably delegated through many levels of responsibility until it finally arrives at the low man on the totem pole who does the work. Consequently, the only people who are entirely familiar with the job is the low man and his immediate supervisor.

From time to time progress reports are prepared and started along their long and tedious way up the ladder, and since each successive level is progressively more remote from the actual work done, each level strikes out of the report those references which to him seem in appropriate, and at long last a thoroughly emasculated version arrives on the desk of the individual who started the whole thing off in the first place. If any information on the project is to be released it is almost invariably based on this mutilated version and not on the work as actually done at the working level.

This situation is further aggravated by the fact that personnel at the various levels have a habit of changing and successive reports receive different treatment, so that the corresponding "edited" versions arriving at top level are often inconsistent and contradictory. In the case of the flying saucer projects we have seen all these factors at work with a vengeance.

The question may well, and probably will be asked, Are the top brass unaware of this situation, and if they know about it why they don't fix it? The answer is very simple; they do know, but to fix it would mean the by-passing of the hierarchy and the destruction of a highly satisfactory system. The system breaks down only when it tries to cope with an entirely alien situation, which happens rarely, otherwise it works effectively and efficiently. The trouble is that the flying saucer situation is definitely alien.

It may be well to remember that initially there may have been some legitimate fear of the saucers, but this fear did not last long. It was soon apparent that these objects did not constitute any particular menace to humanity and there was practically nothing which we could do about it if they did. They came and went as they pleased with little or no apparent concern whether we saw them or not. They were in complete control and we were merely casual observers. Consequently, to the air force, since they constituted no apparent threat to the national security, they were reduced to a mere nuisance value, and that nuisance was to be rid of the whole thing. But there was no one else to carry the ball and the air force are still stuck with it.

Unfortunately, since the classified projects were largely aimed at "explaining away" these things, a certain position had been taken by the airforce, and having painted themselves into a corner, now must wait until the paint dries. What solid information did come out of these projects was most disturbing indeed, striking at the very roots of our conventional science. But there wasn't enough of this information on which to base any substantial reform in scientific thinking; just enough to produce an uneasy feeling that all was not well. So naturally, the least said about this the better, until more was known. One just can't come out and say that the velocity of light is not a universal constant, or that Newton's laws don't always work, or that gravity isn't a primary force after all.

Officialdom is figiting in their chairs hoping for some sort of scientific, mathematical or experimental breakthrough which will tie together the loose ends and explain away the whole flying saucer business without having to go beyond the bounds of conventional science. In other words the status quo is more important than new knowledge. Meanwhile, since they do not have enough answers for the questions which are now being raised, they most certainly arn't going to invite a deluge of further questions admitting anything.

There is one more facet that I would like to deal with. Many people have wondered why the politicians have not picked up the ball, but the answer lies in the concept of politics itself. Politicians have two interests in life; first, to win an election, and second, to do as good a job as possible of representing their constituency. Neither of these could be considered as embracing flying saucer investigations. True, a member of the House may ask questions about flying saucers, suggest that something might be done about their study, or even introduce a bill to take definite action, but without strong public support the result is only so much more wordage in the official record. Furthermore, because of the type of publicity from which the whole matter of flying saucers has suffered, politicians who are naturally very sensitive to public reaction, are reluctant to stick their necks out.

~~From the forgoing, it looks like flying saucers will~~

In the light of the foregoing reasoning I feel that we need not expect any significant statement with respect to flying saucers by any government agency. The nearest we can come to getting an official statement is from the few sincere researchers in the government service who, themselves, are satisfied of their findings and willing to risk the censure of their colleagues and the prestige of their positions. More often than not these people must wait until they retire from the government service before they feel free to make any statements at all.

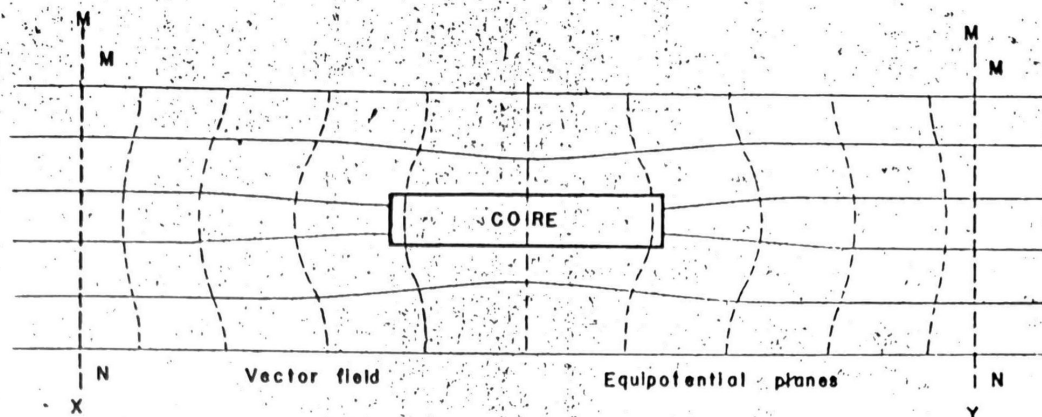
In conclusion I would like to draw an analogy with the story of the negro who was accused in court of stealing chickens. The farmer, his son and the hired man all testified that they had seen the darkey steal the chickens, but when the judge asked him what he had to say for himself he just grinned and said, "Boss, Ah can produce twice as many people what didn't see me steal those chickens!" I am afraid that this is typical of the thinking of many people.

Drawings req'd

12.5
25
37.5

- ① Sketch of iron core in magnetic field. ✓
- ② Apparatus for experiment #1 (a) ✓
- ③ " " " " #1 (b) ✓
- ④ Graph of exp. #1 (a) Exciter winding ✓
- ⑤ Graph of exp. #1 (b) Dia. Winding ✓
- ⑥ Apparatus for Test in Exp. 1 (c) ✓
- ⑦ Graph of exp. #2 (b) ✓
- ⑧ Circuit for determining B H curves. ✓
- ⑨ Graph of Permalloy & Iron cores - Saturation curves ✓
- ⑩ Circuit drawing of low excitation tests. ✓
showing waveform and measurements.
- ⑪ Graph of B H characteristics for Wattmeter ✓
- ⑫ Diag. of wattmeter. #1 design. ✓
- ⑬ Calibrating curves. ✓
- ⑭ Diag. of wattmeter #2 design. ✓
- ⑮ Graph of Resistance Curves for Toroid.
- ⑯ Phasing circuit for domain permeance tests.

THEORETICAL SKETCH OF EARTH'S FIELD NEAR PERMEABLE CORE
DIAGRAM 1



BLOCK DIAG. OF APPARATUS IN EXP. 1 PART (a)
DIAGRAM 2

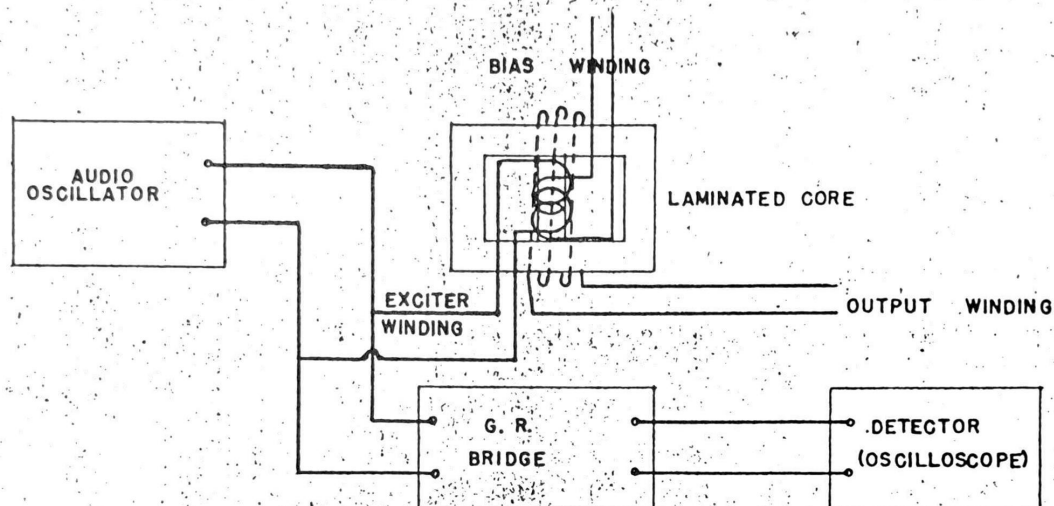
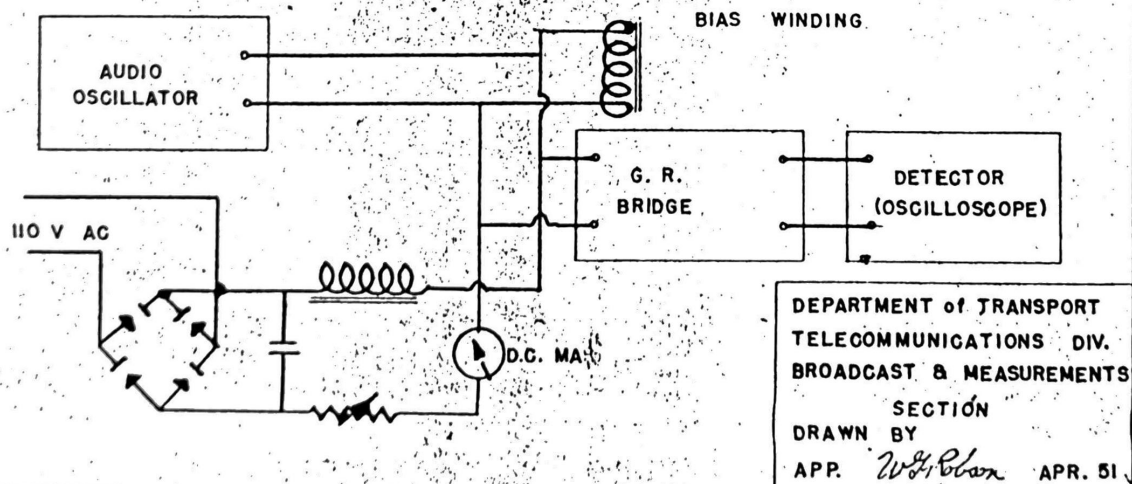


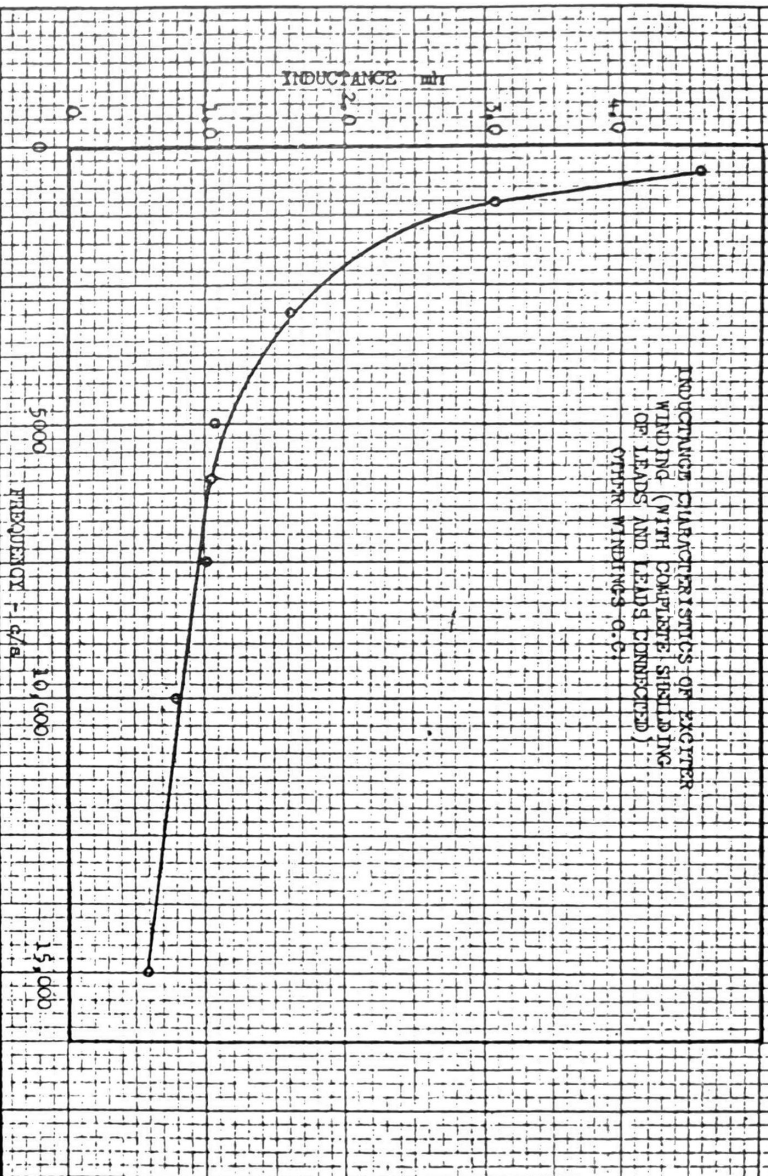
DIAGRAM 3



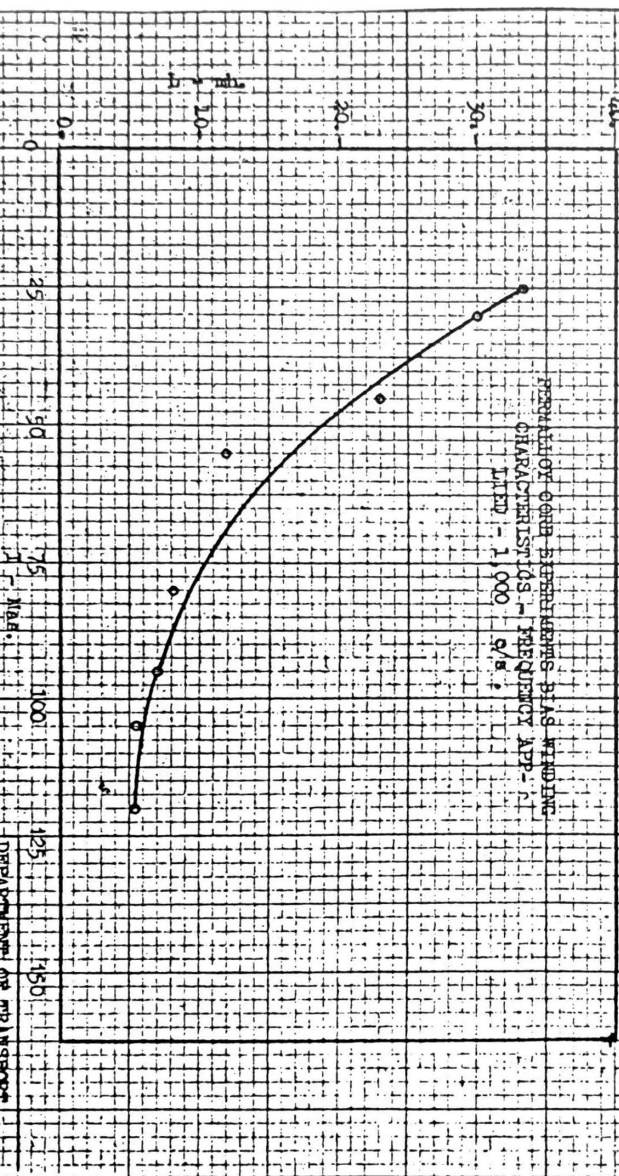
DEPARTMENT of TRANSPORT
TELECOMMUNICATIONS DIV.
BROADCAST & MEASUREMENTS
SECTION
DRAWN BY
APP. *W. H. Blum* APR. 51

DRAWING No.

Dec 1/51

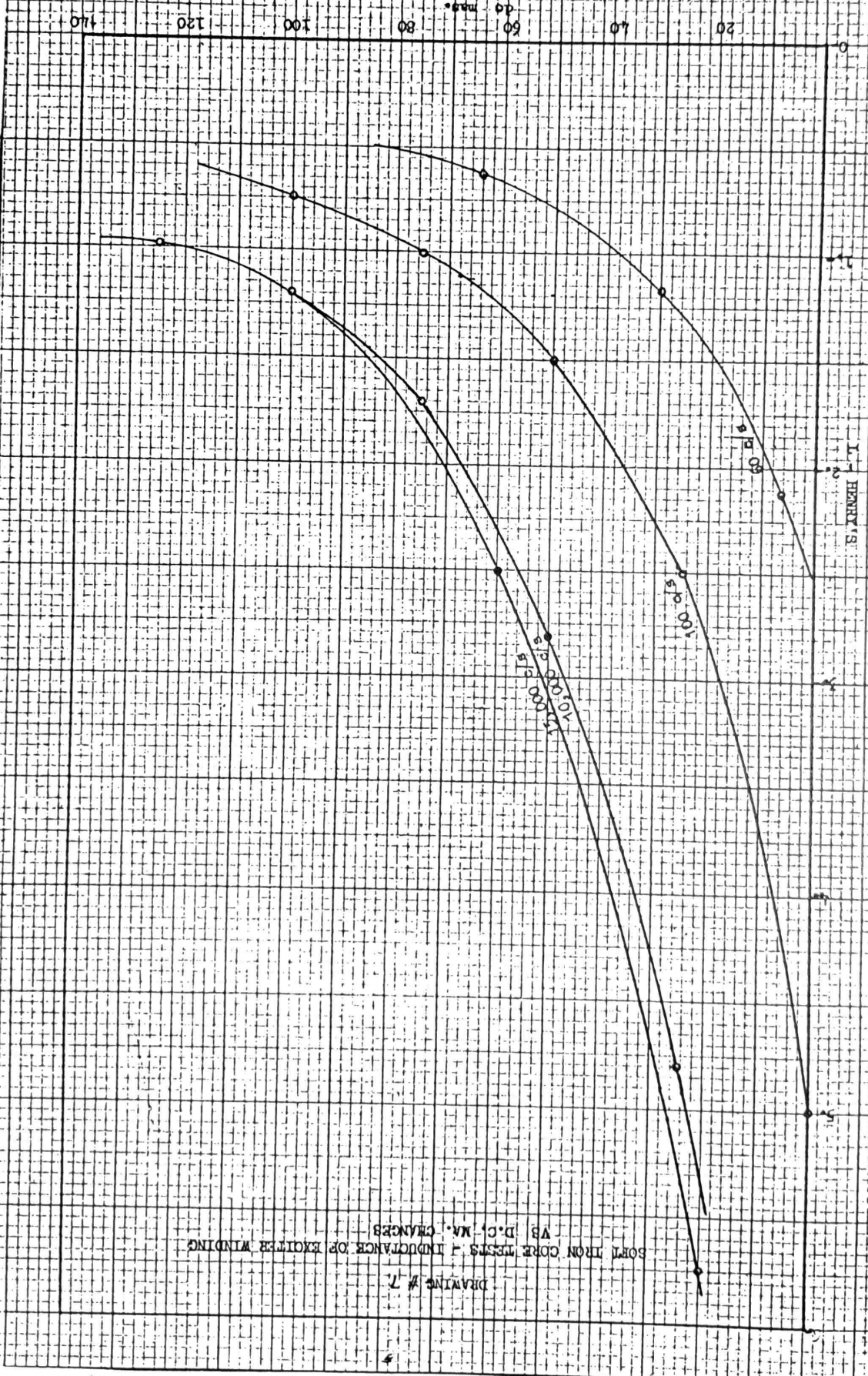


DRAWING #5



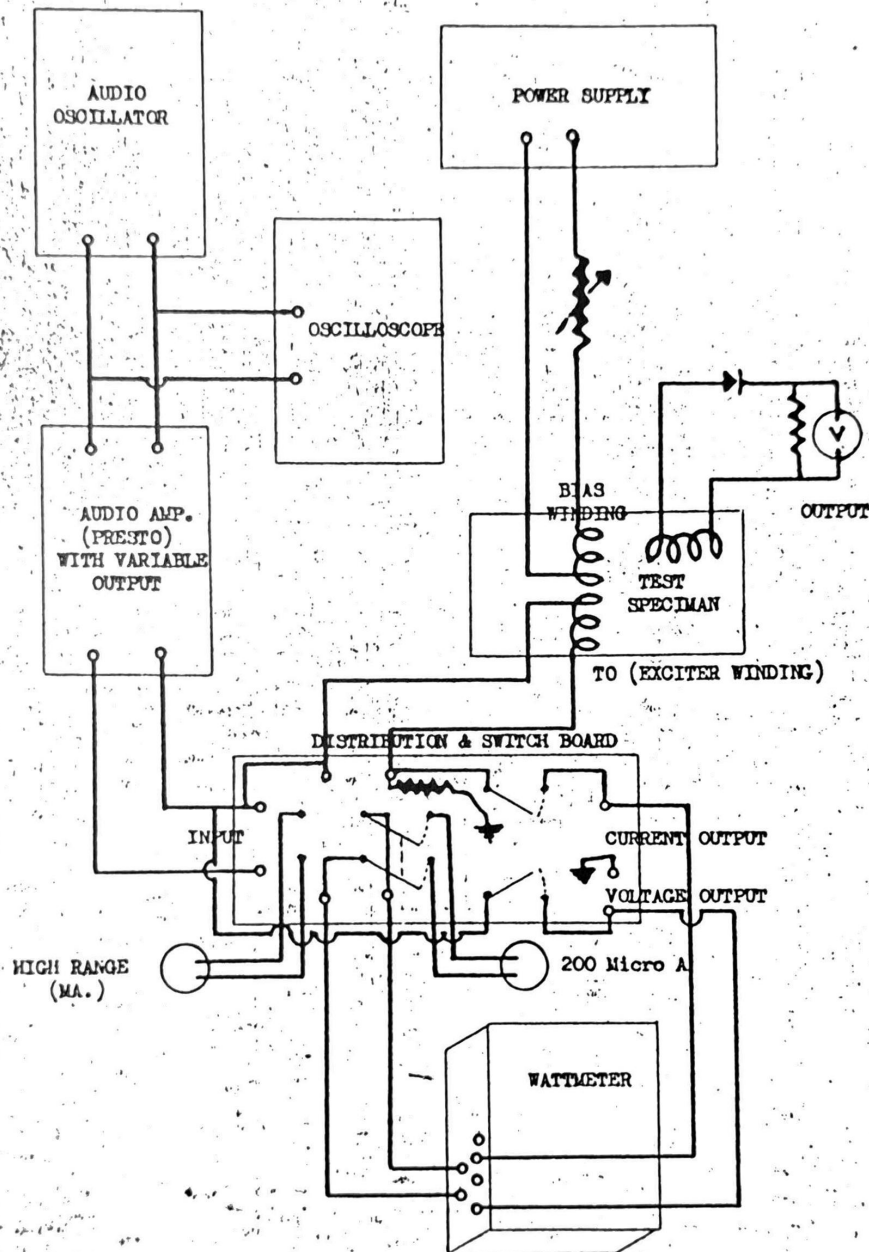
DEPARTMENT OF TRANSPORT
TELECOMMUNICATIONS DIVISION
RECOGNITION & MEASUREMENTS
SECTION
DRAWN BY *W. J. McLean*
APP. BY *W. J. McLean*
APR 51

DEPARTMENT OF TRANSPORT
 TELECOMMUNICATIONS DIVISION
 BROADCAST AND MEASUREMENTS
 SECTION
 DRAWN BY *W. J. [illegible]*
 APP. BY *[illegible]*



SOFT IRON CORE TESTS - INDUCTANCE OF EXCITER WINDING
 VS D.C. MA. CHANGES
 DRAWING # 7

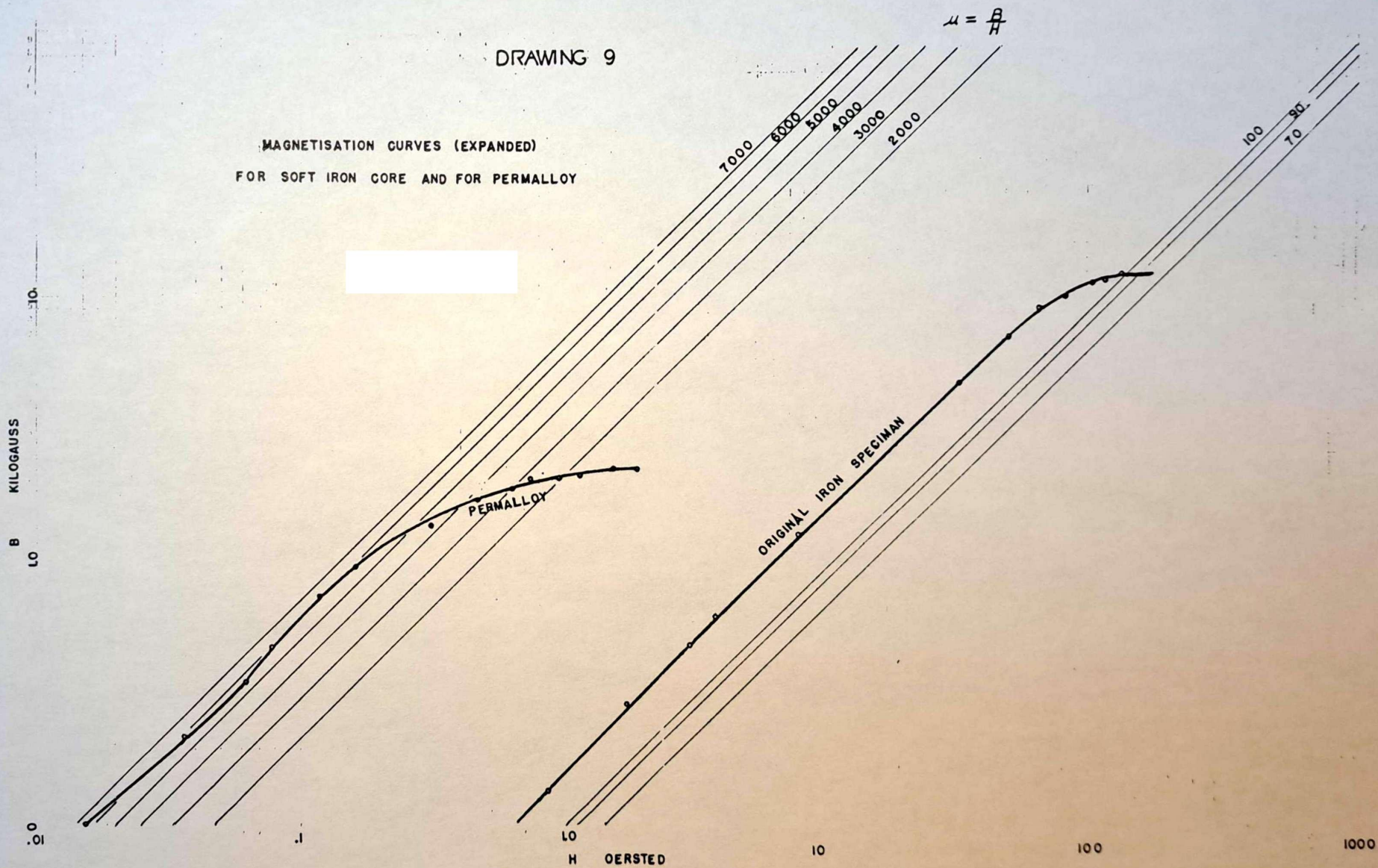
DRAWING # 6
MAGNETIC SINK APPARATUS



DEPARTMENT OF TRANSPORT
TELECOMMUNICATIONS DIVISION
BROADCAST & MEASUREMENTS
SECTION
DRAWN BY *W. H. Nelson*
APP. BY *W. H. Nelson* APRIL 51

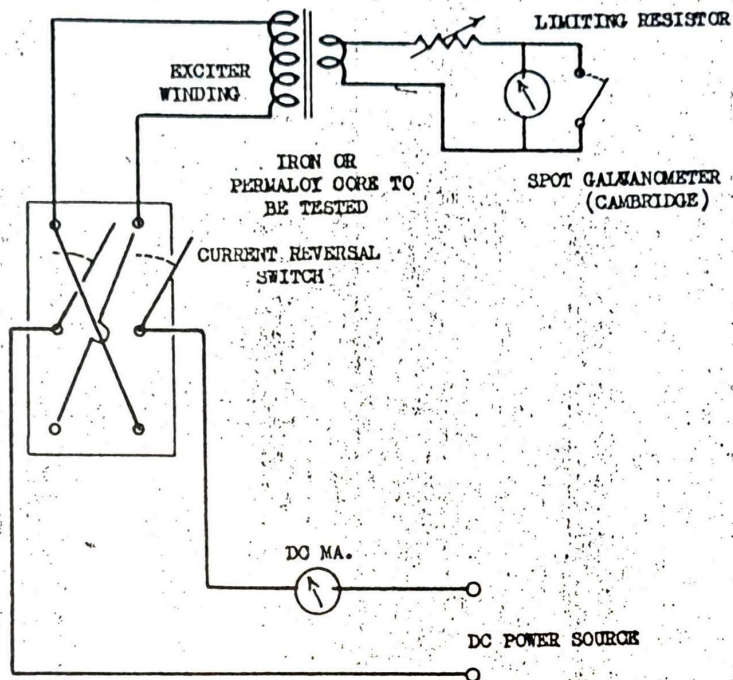
DRAWING 9

MAGNETISATION CURVES (EXPANDED)
FOR SOFT IRON CORE AND FOR PERMALLOY



DRAWING # 8

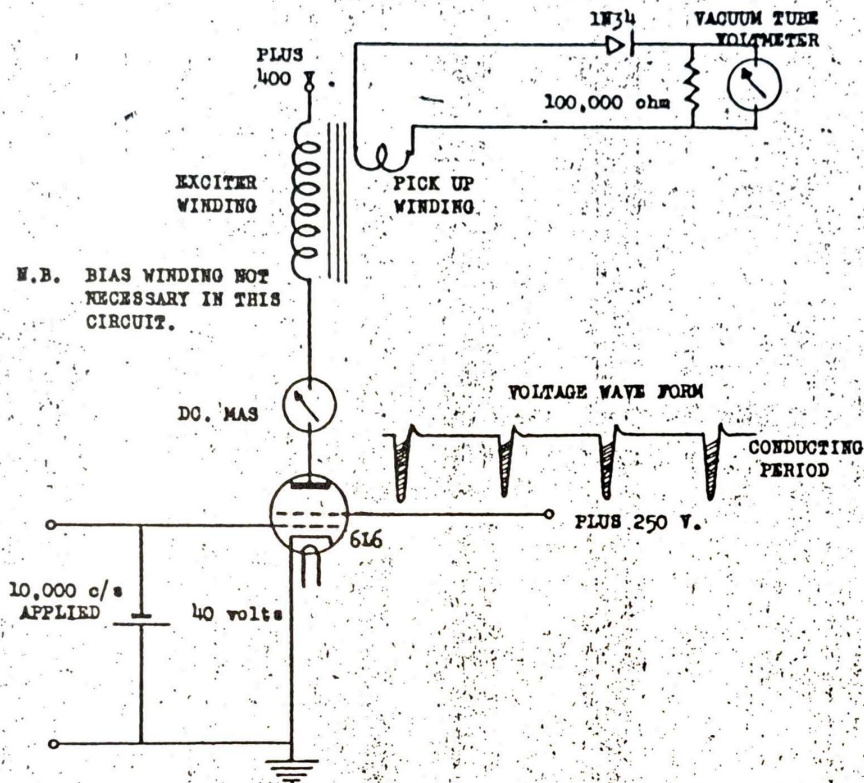
APPARATUS FOR DETERMINING B-H CURVES - Dec 1950



DEPARTMENT OF TRANSPORT
TELECOMMUNICATIONS DIVISION
BROADCAST AND MEASUREMENTS
SECTION
DRAWN BY *W. H. Holman*
APP. BY *W. H. Holman* APRIL '51

DRAWING # 10

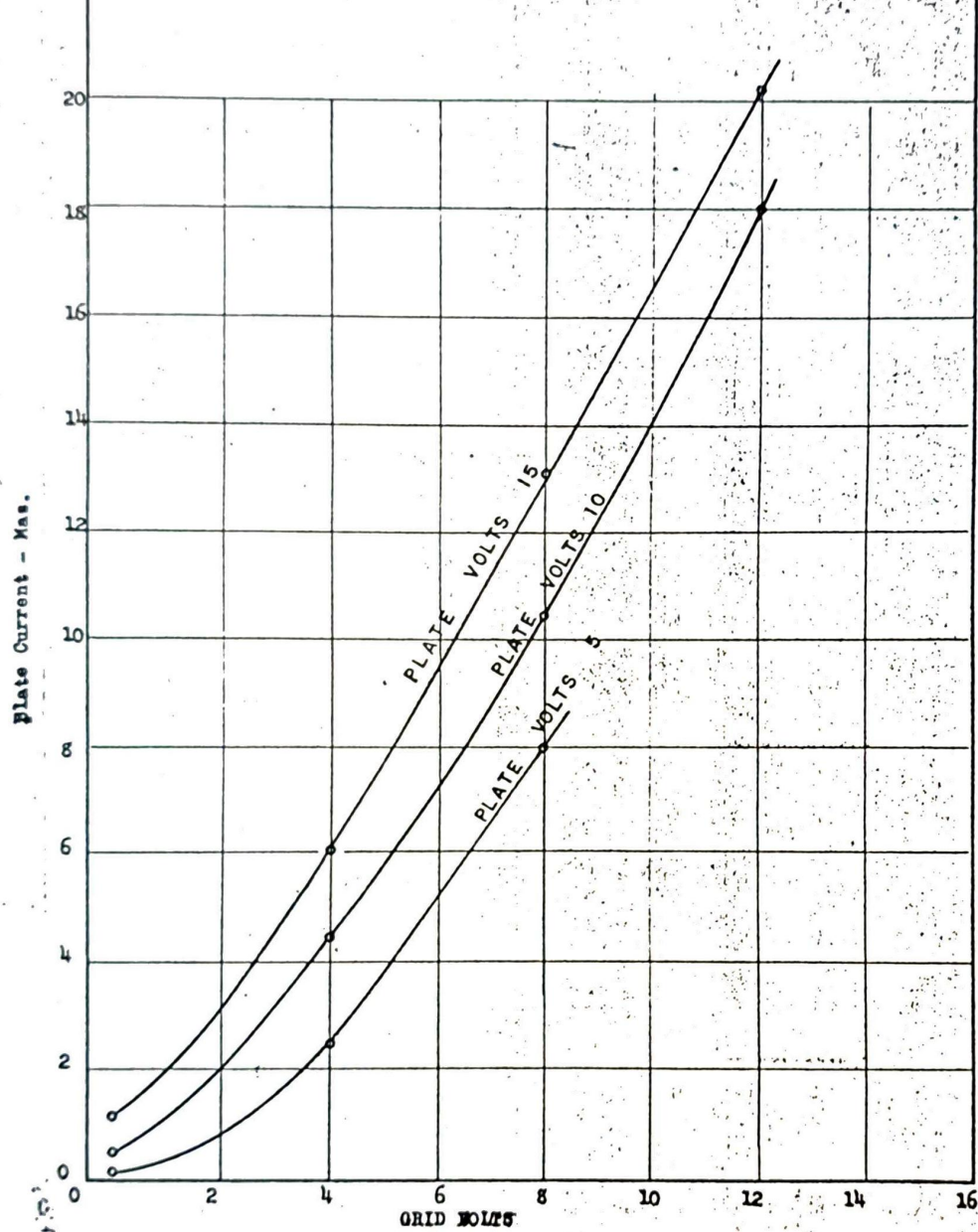
CIRCUIT USED IN PERFORMING TESTS ON THE PERMALLOY CORE AT
LOW EXCITATION CURRENTS



DEPARTMENT OF TRANSPORT
TELECOMMUNICATIONS DIV.
BROADCAST AND MEASUREMENT
SECTION
DRAWN BY *W. H. Robson*
APPR BY *W. H. Robson* APR 1951

DRAWING # 11

6J5 Characteristics Utilized in the Milliwattmeter Design (Static)



DEPARTMENT OF TRANSPORT
TELECOMMUNICATIONS DIVISION
BROADCAST AND MEASUREMENTS
SECTION
DRAWN BY *[Signature]*
APP. BY *[Signature]* APR. 1951



DEPARTMENT OF TRANSPORT
TELECOMMUNICATIONS DIV.
BROADCAST AND MEASUREMENT

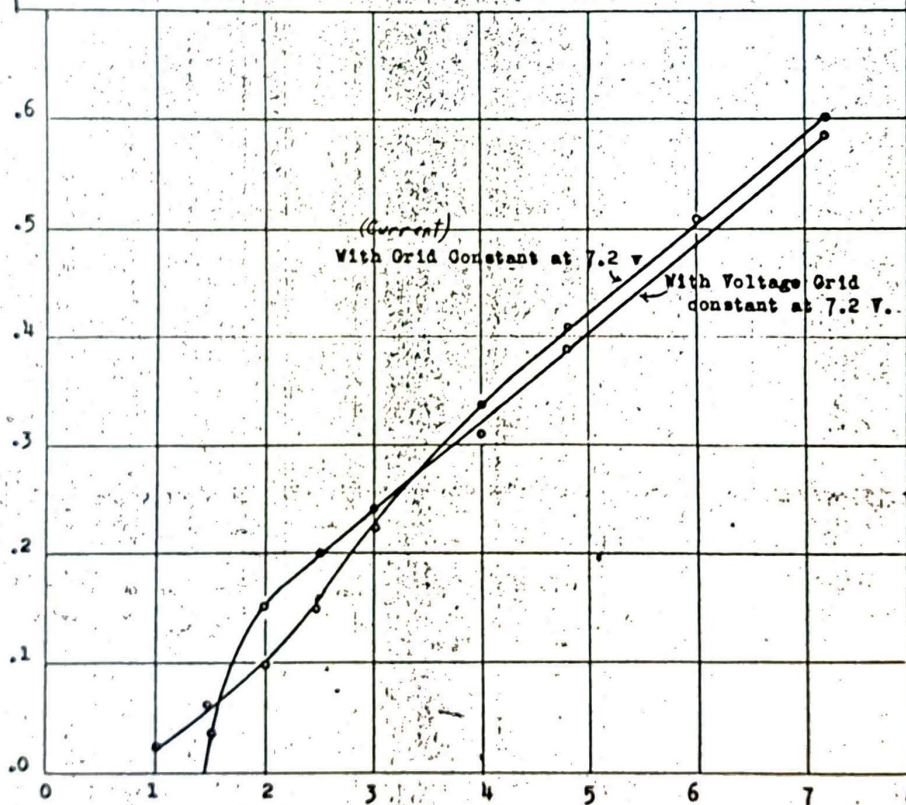
DEPT OF JUSTICE
APR 24 1951

DRAWING # 13

ELECTRONIC MILLIWATTMETER

CALIBRATION CURVES

I_p - Watts vs (E_g) at Grid inputs of 6AS7

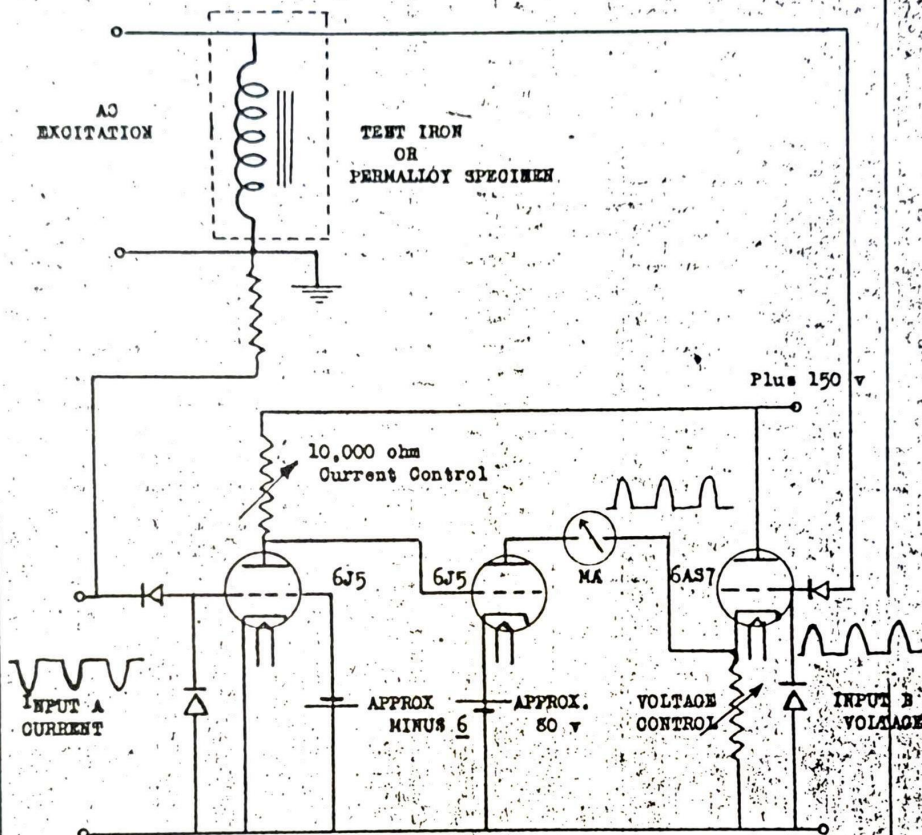


DEPARTMENT OF TRANSPORT
TELECOMMUNICATIONS DIV.
BROADCAST AND MEASUREMENTS
SECTION

DRAWN BY *W. H. R. L.*
APP. BY *W. H. R. L.* APR 1951

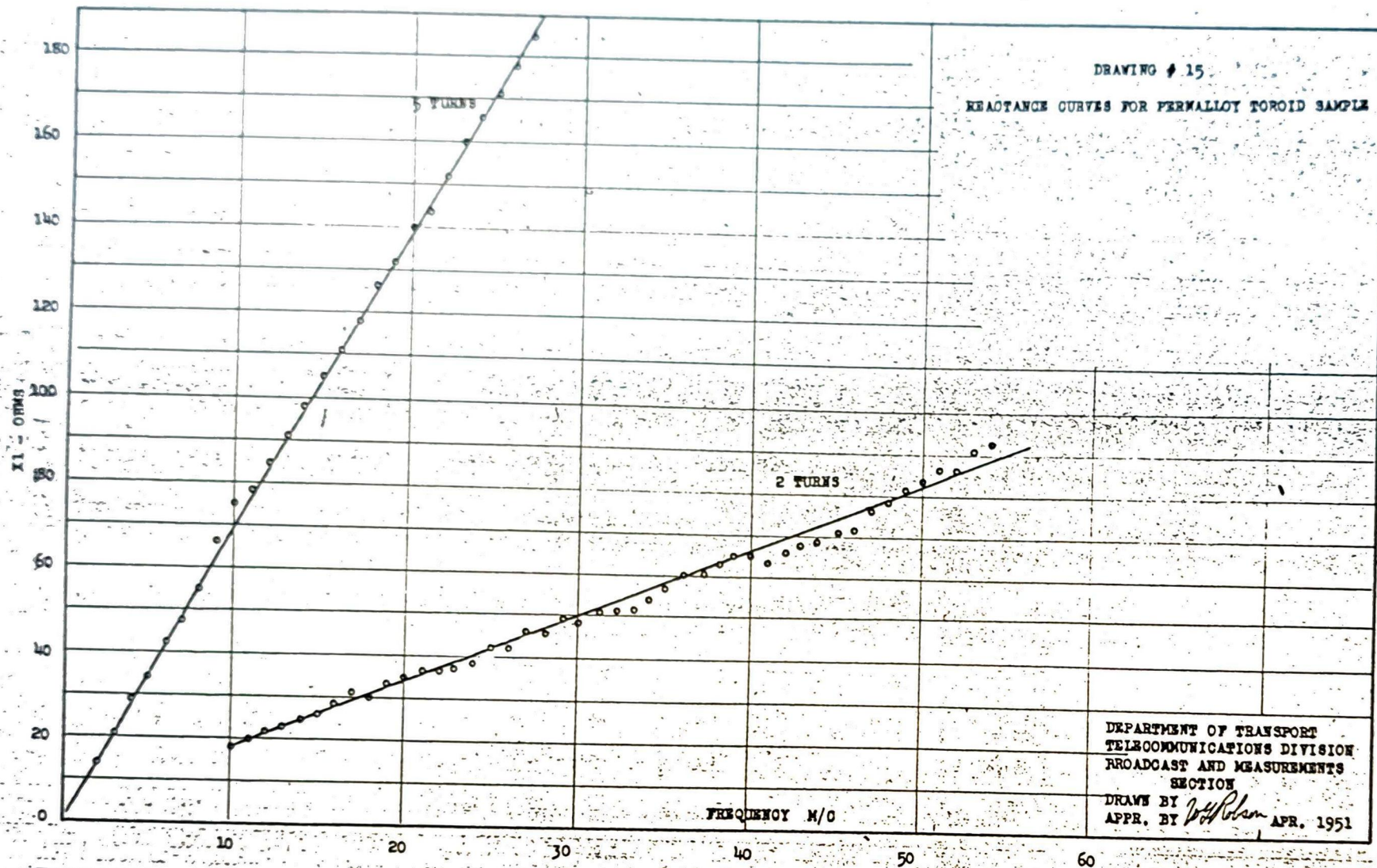
DRAWING # 14

ELECTRONIC WATTMETER EXPERIMENTAL TYPE # 2

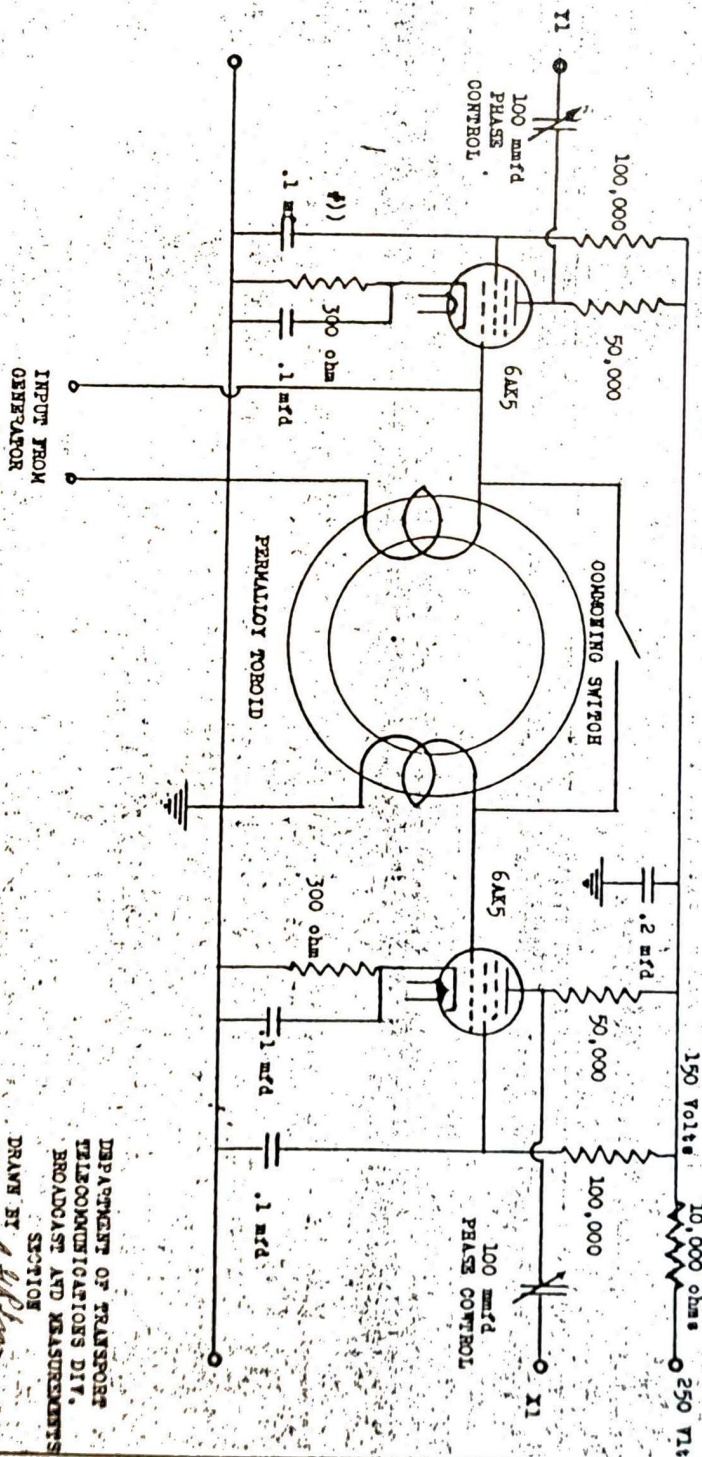


DEPARTMENT OF TRANSPORT
TELECOMMUNICATIONS DIV.
BROADCAST AND MEASUREMENTS
SECTION

DRAWN BY *W. H. P.*
APP. BY *W. H. P.* APRIL 1951



DRAWING # 16
CIRCUIT FOR DOMAIN RESONANCE TESTS



DEPARTMENT OF TRANSPORT
TELECOMMUNICATIONS DIV.
BROADCAST AND MEASUREMENTS
SECTION
DRAWN BY *W. J. R. R.* APR 1951

.....Thanks to Theodore M. Telsch