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EXPERIMENTAL INVESTIGATION OF BIOLOGICALLY INDUCED MAGNETIC ANOMALIES

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ABSTRACT

Magnetic anomalies have been investigated and it is shown that the magnetization curves of para, dia, and ferromagnetic materials may change temporarily due to biological activation. The apparatus, the method of the activation and the measurement procedure are briefly described and a number of test results are included for various materials.

INTRODUCTION

It is generally known that biological processes involve electric and magnetic phenomena. In contrast to electric phenomena, which are well known and utilized in EKG, EEG, etc., magnetic phenomena are comparatively rarely used. The reason for this arises from the immense technical problems involved in the measurement of very weak fields. Since these weak magnetic fields are much weaker than the magnetic field of the Earth, specially screened measuring rooms and very sensitive induction coils must be used [1].

Coupled with the above, there is a time honoured question in brain research: Is the functioning of the brain based solely on the complex interaction of known physical and chemical effects, or are there additional, hitherto unknown effects as well? On the basis of the results published in this study it is suggested that fundamentally new physical interactions are involved in the functioning of the brain, and perhaps in other biological processes as well. However, the possibility is not exluded that the currently recognized phenomena can be interpreted in another, up till now unknown, way. Research in this area may yield a twofold benefit: to learn about a new, hitherto anomalous magnetic effect; to gain a new insight into the biophysics of the nervous system.

Anomalous effects in the brain's activity have been measured by May and Humphrey [2] and by Jahn and Dunne [3] and it is shown that the common roots of the anomalous effects are quite clear: the anomalies appear only when a target object - the measured system - is influenced by the work of an active brain. Though this statement seems at first sight to be an overstatement, the measurements of these authors and our own were repeatable and consistent.

The cause or causes of these anomalies, and their fundamental features are not known at present; the cause or causes of the measured anomalies should most probably be sought in areas beyond the limits of our present knowledge. This is suggested for two reasons:

a) The regular biomagnetic field intensity of humans is approximately 10^{-14} Tesla, which is practically negligible compared with the weak geomagnetic field intensity ($\sim 7 \times 10^{-5}$ Tesla).
b) The measured effect cannot be induced even by very strong magnetic fields nor by any present known effects.

The tentative experimental finding of this work is as follows: The magnetization curves of certain materials change temporarily in an anomalous manner, most probably due to the effect of biological activation. This "activation process" requires a high level of mental concentration, and a small metal device. The paper describes briefly the activation process and the activation device and, in a more detailed manner, the test results.

The activation method and devices were developed by Robert Pavlita, and all samples were activated by him. The tests were carried out during a three--year period and the test methods were improved continuously. The results presented here might be of interest to several branches of science, including solid-state physics, electrodynamics, neurophysiology and psychology-though some of the results remain unclassified at present. The interdisciplinary nature of the problem is evident but unfortunately this aspect complicates the solution because of the lack of a common "language" for these areas. The apparent lack of any communication between these branches of science may explain the fact that this region has not been investigated to any great extent. But there is another reason as well: the effect is barely noticeable without sensitive measuring devices, so the chance of accidental discovery is slim. Moreover, there seem to be comparatively few individuals who have the ability to perform activation.

The aim of this study has been to investigate a natural phenomenon, with no immediate intention of utilizing it for any practical application, though its practical use cannot be ruled out in the long run.

PAVLITA ACTIVATION DEVICES

The magnetic properties (e.g. susceptibility, saturation magnetization, coercivity) of most materials have been intensively studied for a very long time, and they can be considered as well-known, permanent quantities, which are characteristic of a given specimen. These properties depend on the temperature, the magnitude and direction of the external magnetic field, on the structure of the given material, etc., and they are stable in time for chemically stable materials.

Pavlita Activation Devices (PADs) may seem to offer another view. When a specimen of known magnetic properties is placed into a PAD, after a brief period (5-50 sec) its magnetic properties may change, and this change is not explainable by experimental error.

There are several versions of these activation devices: they differ in size, shape and material, but they have common features as well. The larger PADs are termed "generators", the smaller ones "sondes", by Mr. Pavlita. A few examples of devices are shown on the plates. The basic purpose of PADs is to "amplify and accumulate the biomagnetic field effect". The state of art of investigating this effect is in its infancy, therefore the terminology is somewhat arbitrary, and very little is known about the physical roots of the

effects. It is important to note that the effect of this "biomagnetic field" is qualitatively different from that of the usual magnetic field. (The usual term "biofield" is rather misleading but in lack of a generally accepted better term, we have used this one.)

So far as sample activation is concerned, this is a simple procedure: the sample has to be inserted into the hole, or one of the holes, or into several holes (up to 5), several times (up to 30) in order to increase the effect. The dimensions of the holes in the PAD are about the same as those of the sample.

Most of our tests were carried out in the laboratory under controlled conditions with the measurements being carried out before and after the activation. These activations were carried out by two small sondes, these sondes being smaller in size than the generator. The sonde is less effective and the maximum change induced in the magnetic properties of the samples is smaller than in the case of the activation in a generator.

Two activation sondes are shown on Plates 1-6, used during the metal activation experiments. The sondes are made of iron with some brass parts. None of them had a noticeable magnetic field, and the two sondes did not attract or repel each other, nor did they affect non-magnetic pieces of steel.

The sonde has to be "charged" or activated before its use, and during the activation as well. Activation is carried out in a generator. None of these instruments has any permanent magnet or electromagnet, there are no signs of any batteries or electrostatic devices. We were always able to examine the devices at any time on request, down to the most minute details. The surfaces of the activation chambers were quite smooth, polished by regular use. These chambers did not contain any dust or powder, but some pollution due to wear and tear could not be ruled out.

The generators are steel slabs which are flat or rounded with activation chambers, and there are areas with rough surfaces or welded bronze spots. The overall dimensions were not greater than 20 cm x 20 cm x 20 cm. There is a hole (or sometimes two) with a thread in order to be able to attach the generator to the sonde.

It is emphasized that the generator does not generate any known field, substance or effect. It is again mentioned that the terminology used in the text is somewhat arbitrary, and it may have nothing to do with real physical phenomena taking place during the process.

The development of these devices seems to have been heuristic, and took place by trial and error. The activation itself requires a long period of learning, training, and it is a tedious procedure. The rough surface of the sonde is supposed to ease the activation. According to Mr. Pavlita, activation is basically a mental process; some parts are similar to yoga relaxation and concentration techniques, and in principle anybody can learn to carry out the activation procedure.

The word "activation" is used for that process which induces the measurable changes, though it has nothing to do with radioactivity. The word "active" merely notes that an anomalous change has occurred on a test specimen, or a PAD is capable of inducing the anomalies.

According to Mr. Pavlita, the capability for activation is limited in terms of size, it is not possible to activate large objects, only those of the order of centimeters. Furthermore, the size of the devices is limited because severe pain and rapid fatigue occur if a device larger than about 20 cm x 20 cm x 20 cm is activated. The activation has not been attempted by other persons for two reasons: a) the primary object of the test is to verify the existence of the phenomenon, b) the learning process is long and time consuming.

The activation takes place with the combined use of both hands, in a prescribed regular zig-zag-like manner, through several days or weeks, every day for about one hour.

EXPERIMENTAL PROCEDURE

The effect of activation was investigated utilizing a vibrating sample magnetometer. This type of magnetometer is commonly used for measuring the magnetic moment of materials, and is one of the most generally employed measuring apparatuses in magnetic research [4,5]. By means of this equipment one can quantitatively measure the magnetization of the samples. The sample to be measured is placed into an electromagnet or solenoid which produces a magnetic field which, in turn, magnetizes the sample. This induced magnetic moment of the sample is measured as a function of the external field. During the measurement the sample is vibrated and the moving magnetized body induces an electric signal in the measuring coil system surrounding the sample. The value of the induced electric field is proportional to the magnetic moment of the sample. The position of the sample in the electromagnet is shown in *Fig. 1*. In this arrangement the direction of vibration is perpendicular to the direction of the magnetic field. For one part of the measurements another vibrating sample magnetometer was used in which the direction of the magnetic field was parallel to the direction of vibration. The external magnetic field is increased linearly (from zero) and the induced magnetic moment of the sample is detected continuously as a function of the field. The magnetization is plotted against the external field by an X-Y recorder.

In every case, we took the utmost care in endeavouring to ensure the most reliable and vigilant conditions for measurements. Mr. Pavlita activated the samples, prepared by us in our own laboratory. The previously marked samples were given to Mr. Pavlita by one of the authors; he activated them in our presence, touching by hand only the non-activated end of the samples. He was watched continuously throughout the activation period by both authors, and during the intervals by one of the authors. The samples were identified by

Fig. 2. Magnetization curve of a wood sample before (curve a) and after (curve b) activation. The curves are taken while using adhesive tape to fasten the sample.

Fig. 1. Schematic arrangement of the measurement in the vibrating sample magnetometer.

marking their non-activated ends. Immediately after activation one of the authors took the sample out of Mr. Pavlity's hand and measured it in the magnetometer. Only one of the authors worked with the magnetometer, Mr. Pavlita with the other author sat in the other corner of the lab during the whole measurement process, and in a separate room in the case of the ferromagnetic specimens. The equipment used for the activation was checked before, during, and after the activation, and every part of it was carefully scrutinized. The samples were stored at some distance from Mr. Pavlita and only immediately prior to the activation was a given sample handed over.

The samples were activated in a small sonde by inserting them several times into the activation holes. The magnetization curve was recorded in the magnetometer immediately before and after activation. None of the experimental parameters (the exact position of the sample in the magnetometer, sensitivity of the apparatus, etc.) was changed from measurement to measurement. The samples were fixed to the sample holder of the magnetometer using a small piece of adhesive tape. The samples to be activated were measured before the activation together with the adhesive tape, and the adhesive tape was also measured without the sample. The sample holder itself gave no signal. After activation had taken place, the sample was replaced in the sample holder, using the same piece of adhesive tape as earlier, and the measurement was repeated. The activated end of the sample - which had not been touched by anybody during the whole process - was inserted into the sensitive region of the sensing coils. The non-activated end of the samples was so far from the sensitive region during measurements that it could not have caused any signal even if it was somehow magnetized. After the activation and before the measurement the samples were brought into contact with a grounded conductor because the possible electrical charge on the sample to be measured is able to cause a signal in the magnetometer that is similar to that from a magnetic moment.

It is our firm belief that the above-described precautions completely ensured that the samples were not tampered with or substituted. We are confident that the results are not the consequence of sleight of hand or measurement errors.

ACTIVATION OF WOOD AND PVC SAMPLES

A number of wood and PVC samples were measured and it was found that the activation process in the above-described devices significantly affected the magnetic behaviour of the samples. The samples were cylindrical in shape, with a diameter of 2.5 - 3.2 mm and a length of 27 - 50 mm. One of the ends was activated, the length of the activated part being about 5 - 10 mm. Some of the samples were measured before as well as after activation; the rest of the samples were not measured before activation but in this case we measured control (non-activated) samples having the same properties. On no occasion

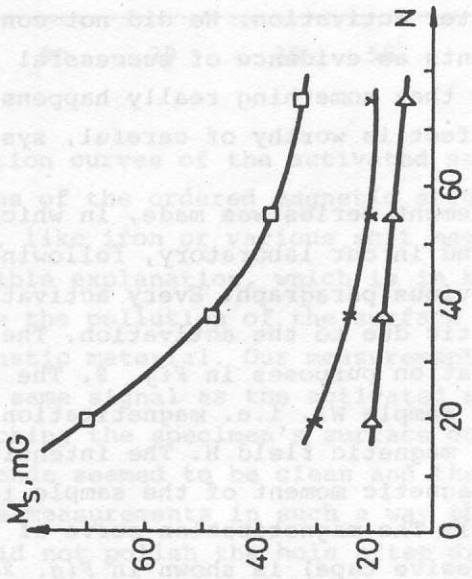

Fig. 4. Change of magnetization M_S of three different wood samples in time. N is the number of days after activation.

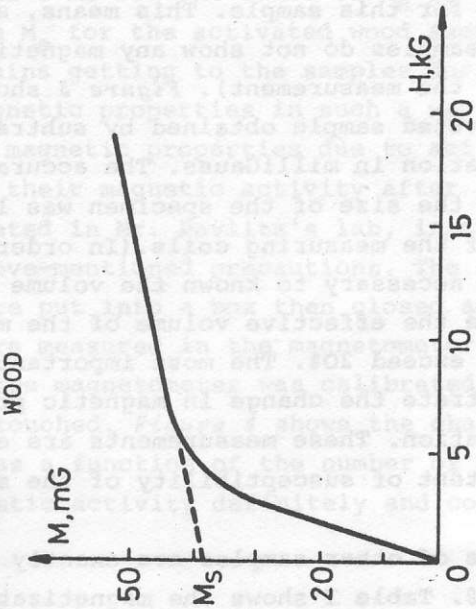

Fig. 3. Net magnetization curve of an activated wood sample.
This curve is obtained from Fig. 2 after eliminating the effect of the adhesive tape.

did the samples show any magnetic activity, i.e. they could not be magnetized measurably by an external field. The magnetic properties of the majority of samples (20 wood and 4 PVC) were changed due to the activation. For 5 wood samples we did not find any measurable change. These 29 samples were activated far from the place of measurement (at Mr. Pavlita's laboratory) and we measured them several days or weeks after activation. We did not consider the results of these preliminary experiments as evidence of successful activation, but they strongly indicated to us that something really happens with the samples during activation, and the effect is worthy of careful, systematic investigation.

For this reason a measurement series was made, in which five wood and four PVC samples were activated in our laboratory, following the precautionary measures described in the previous paragraph. Every activation was "successful" i.e. the samples became magnetic due to the activation. The result of one measurement is shown for illustration purposes in *Fig. 2*. The figure shows the original measurement curve of sample W1, i.e. magnetization M of the sample as a function of the external magnetic field H. The intensity of the field is given in kiloGauss, and the magnetic moment of the sample is given in CGS electromagnetic units (e.m.u.). The magnetization curve of the sample before activation (together with adhesive tape) is shown in *Fig. 2a*, and the magnetization curve of the same sample after activation (together with the same adhesive tape) is plotted in *Fig. 2b*. It is seen that the magnetization of the activated sample became much larger than the magnetization before activation. The magnetization curve of the adhesive tape without sample - which is not shown here - is exactly the same as curve (a) in *Fig. 2*, so curve (b) can be considered as the background for this sample. This means, at the same time, that the non-activated wood samples do not show any magnetic activity (at least at such sensitivity of the measurement). *Figure 3* shows the net magnetization curve of the activated sample obtained by subtracting *Fig. 2a* and *b*, and calculating the magnetization in milliGauss. The accuracy of this value can not be very high because the size of the specimen was larger than the homogeneous sensitive area of the measuring coils. (In order to calculate the magnetization in Gauss it is necessary to known the volume of the magnetized body.) We could only estimate the effective volume of the measured specimen. The error is believed not to exceed 20%. The most important purpose of our work, however, was to demonstrate the change in magnetic properties of specimens, brought about by activation. These measurements are eminently suitable for comparison, the exact extent of susceptibility of the sample is now of secondary importance.

The magnetization curves of other samples are exactly the same in character as that shown in *Fig. 2*. Table I shows the magnetization of the activated samples M_s. The definition of M_s is shown in *Fig. 3*. Before activation, M_s is zero (within the limits of measurement sensitivity for every specimen).

Table I

The net magnetization M_s of activated samples
(W=wood, P=PVC)

Sample	W1	W2	W3	W4	W5	P1	P2	P3	P4
M_s (mG)	39	60	29	35	58	74	68	58	52

The magnetization curves of the activated samples are similar to the magnetization curves of the ordered magnetic structures, e.g. of ferromagnetic materials, like iron or various soft magnetic alloys.

The only possible explanation, which is in keeping with our classical knowledge, could be the pollution of the surface of the wood samples with grains of ferromagnetic material. Our measurements showed that about 0.02 mg iron can cause the same signal as the activated samples. But the possibility of iron grains reaching the specimen's surface does not seem probable because the holes in the sonde seemed to be clean and their surface to be smooth. To check this, we made measurements in such a way that we drilled a hole into a piece of iron, did not polish the hole after drilling in order to increase surface pollution and then inserted and rotated a wood sample into the hole many times, intentionally very forcefully. The magnetization curves were taken before and after this process, and it was found that the magnetization of the sample increased slightly, the magnetization curve showed a similar character to that in *Fig. 3*, but the effect was about 1/6 of the activation in the sonde. That is, we obtained 8 mG for the value of M_s in the case of this specimen, whereas the average M_s for the activated wood samples was 45 mG. So the possibility of iron grains getting to the samples during activation and causing a change in the magnetic properties in such a way seems unlikely.

The change in magnetic properties due to activation is not stable in time: samples lose their magnetic activity after a certain time. Three wood samples were activated in Mr. Pavlita's lab, in the presence of one author, maintaining the above-mentioned precautions. The samples were marked; after activation they were put into a box then closed and guarded by the authors, and the samples were measured in the magnetometer from time to time. Before every measurement the magnetometer was calibrated. The activated end of the samples was never touched. *Figure 4* shows the change of the magnetization M_s of the samples as a function of the number of days after activation. It is seen that the magnetic activity definitely and continuously decreases in time.

ACTIVATION OF DIA- AND PARAMAGNETIC SAMPLES

In addition to the wood and plastic samples, several other materials were tested as well. The primary reason for additional measurements was to learn more about the biologically induced magnetic anomalies, and to improve the test methods. For this reason, instead of wood and plastic materials, diamagnetic and paramagnetic materials were also used for the experiments. The advantage of these materials was that their physical properties, such as chemical composition and material structure, are known and controllable in contrast to the properties of wood samples.

A series of experiments were performed using transparent, $LiTaO_3$ single crystals. These crystals are diamagnetic and have negative susceptibility, i.e. the sample magnetization and magnetizing field are opposite in direction, and magnetization depends linearly on the external field.

Two cylindrical specimens were used both of 4 mm diameter and 23 mm length. Both of them were activated and measured before and after activation. The activation was performed in Mr. Pavlita's laboratory, in the presence of one author. The samples were prepared and marked by us, and after activation nobody could have tampered with or substituted them. After activation the character of magnetization curves remained unchanged (i.e. linear), but the absolute value of the susceptibility increased by 85% due to the activation for both samples. The magnetization curves (after eliminating the effect of adhesive tape) are shown in *Fig. 5* for both $LiTaO_3$ crystals (samples A and B), before (curves a) and after (curves b) activation. The measurement method was the same as that described earlier.

Five bismuth samples (which have a very high diamagnetic susceptibility) were manufactured in order to test diamagnetic metal specimens. For three samples the susceptibility decreased due to the activation. The test result of one of these samples is shown in *Fig. 6*. For all the activation tests the magnetization curve remained linear, but the degree of change was different. In one case the susceptibility of the sample increased (its absolute value decreased), i.e. the activation changed the susceptibility of this sample to the opposite direction of that found in the other cases. The susceptibility of the fifth sample was not influenced by the activation.

The induced change vanished gradually for all samples; three days after the activation all the samples had returned to their pre-activation level.

The effect of activation was also investigated for two paramagnetic materials, viz. for aluminium and praseodymium. Aluminium has a low paramagnetic susceptibility, the measured samples were in the form of a coiled strip of foil so the measured susceptibility of these samples is very low: practically only the usual background can be measured. Three samples were activated; one of the test results is plotted in *Fig. 7*. Due to activation the magnetization curves of the other samples changed in a similar way. Praseodymium is a rare earth metal with quite high paramagnetic susceptibility. The samples were shaped like prisms with a square cross section (about 3-4 mm^2) and 20-30 mm

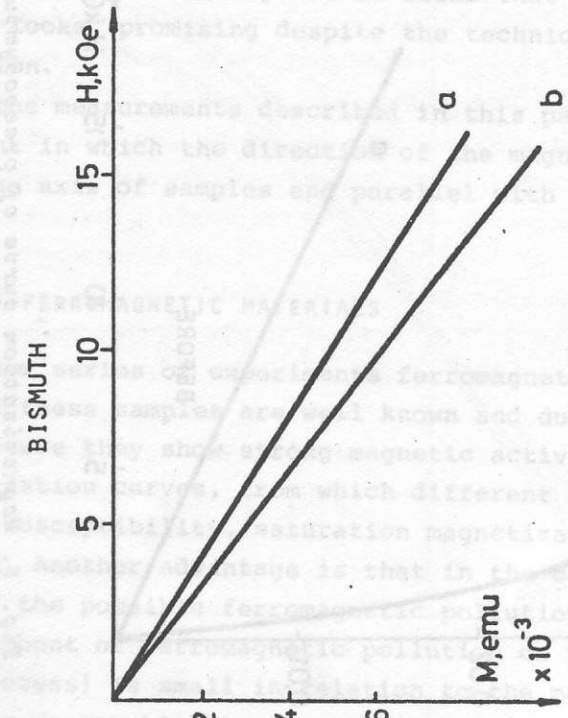

Fig. 6. Magnetization curve of bismuth sample before (curve a) and after (curve b) activation.

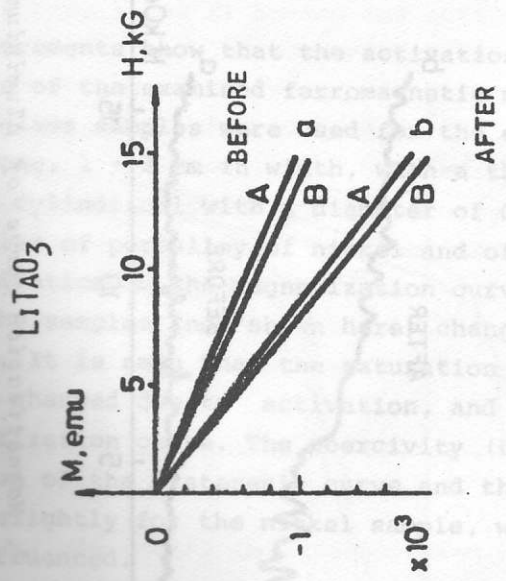

Fig. 5. Net magnetisation curves of $LiTaO_3$ samples A and B before (curves a) and after (curves b) activation.

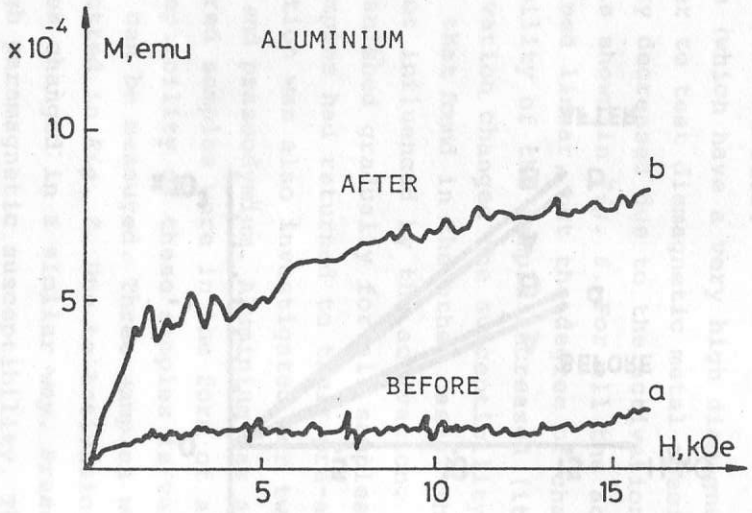

Fig. 7. Magnetization curve of aluminium sample before (curve a) and after (curve b) activation.

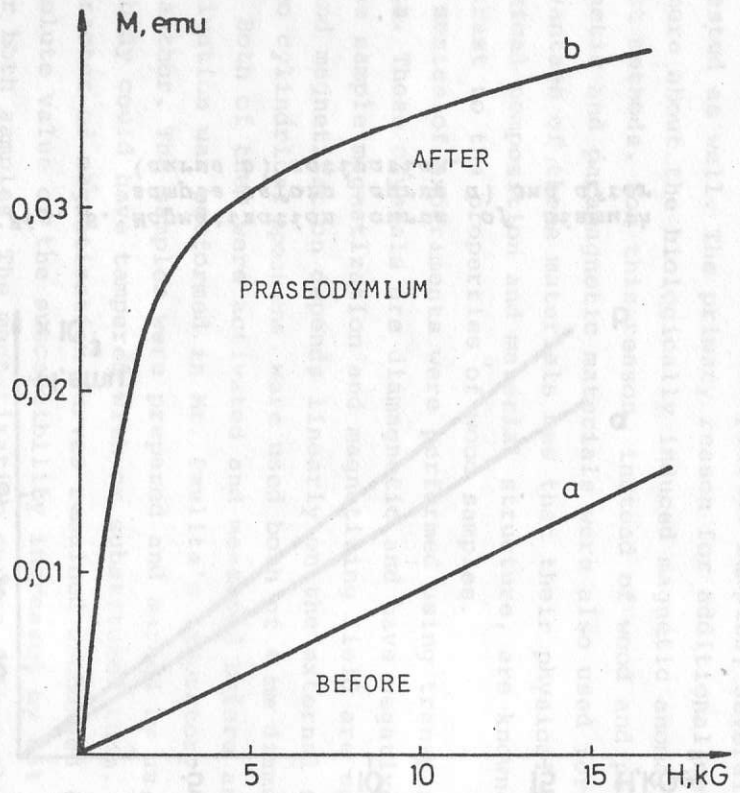

Fig. 8. Magnetization curve of praseodymium sample before (curve a) and after (curve b) activation.

length. Three samples were activated, all of them changed their magnetization curves significantly and in the same way. The result of activation for one of the samples is shown in *Fig. 8*. It seems that the testing of the rare earth metals looks promising despite the technical difficulties due to their rapid oxidation.

All of the measurements described in this paragraph were made in such an arrangement in which the direction of the magnetizing field was perpendicular to the axis of samples and parallel with the direction of vibration.

ACTIVATION OF FERROMAGNETIC MATERIALS

In another series of experiments ferromagnetic samples were used. The parameters of these samples are well known and due to their magnetically ordered structure they show strong magnetic activity. They have characteristic magnetization curves, from which different material parameters, like initial susceptibility, saturation magnetization, coercive force, can be determined. Another advantage is that in the case of ferromagnetic samples the effect of the possible ferromagnetic pollution is out of the question because the amount of ferromagnetic pollution on the surface (due to the activation process) is small in relation to the mass of the sample, so it cannot cause a measurable signal change.

The measurement of magnetization curves of these samples was performed using another vibrating sample magnetometer. Here both the direction of the magnetizing field and the direction of vibration are parallel to the axis of the samples.

The measurements show that the activation procedure affects the magnetization curves of the examined ferromagnetic materials. Permalloy, nickel, Fe_3Al and metglass samples were used for the experiments. The specimens were about 20 mm long, 1 - 2 mm in width, with a thickness of 20 - 200 μm, but the Fe_3Al was cylindrical with a diameter of 0.5 mm.

Two samples of permalloy, of nickel and of Fe_3Al were activated. The effect of activation on the magnetization curve can be seen in *Figs. 9-11*. The rest of the samples (not shown here) changed the magnetization curve in a similar way. It is seen that the saturation magnetization of samples significantly changed due to activation, and also changed the slope of the initial magnetization curve. The coercivity (the distance between the point of intersection of the hysteresis curve and the H=0 point on the H axis) also changed slightly for the nickel sample, while for the other two cases it was not influenced.

It is worthy of note that the first activation attempt of Fe_3Al was unsuccessful during an afternoon measuring session. Next morning, however, the activation was successful - when Mr. Pavlita was not tired.

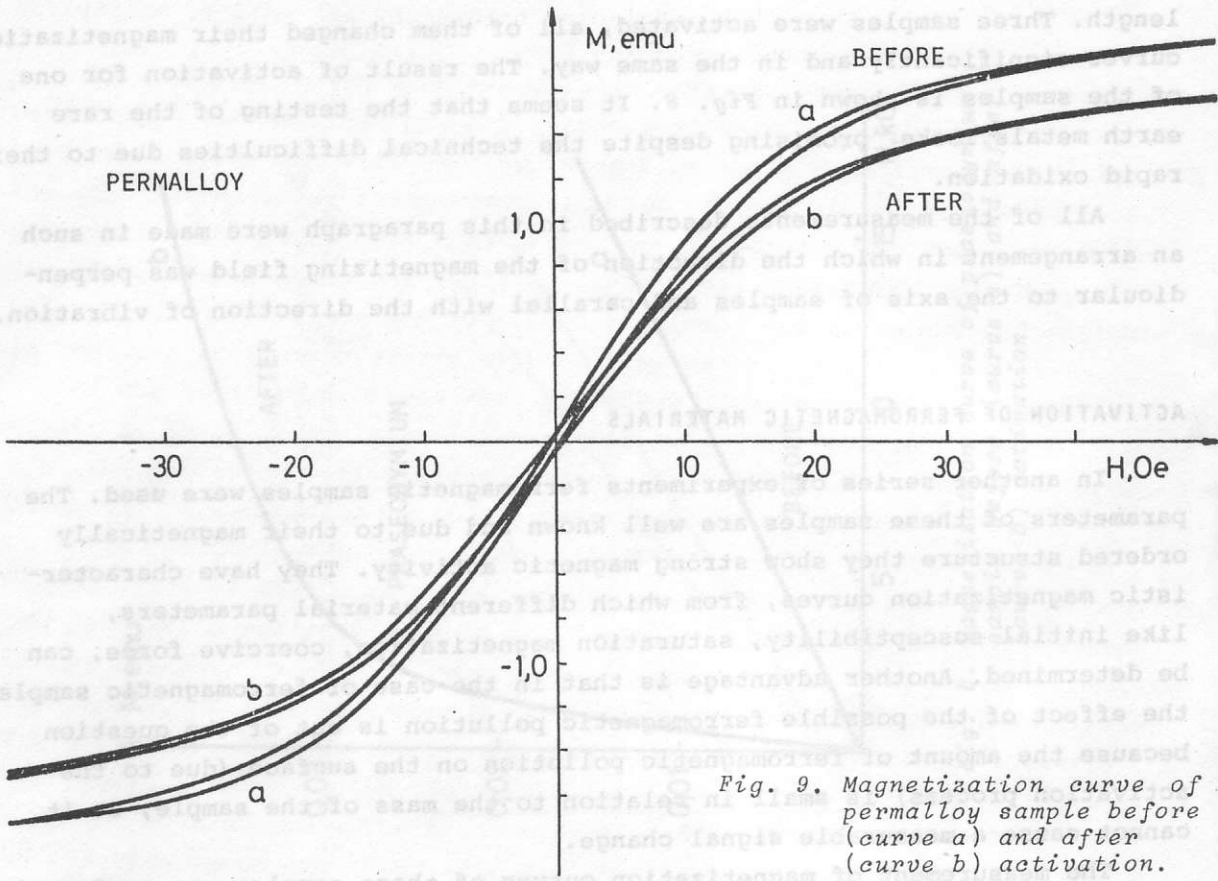

Fig. 9. Magnetization curve of permalloy sample before (curve a) and after (curve b) activation.

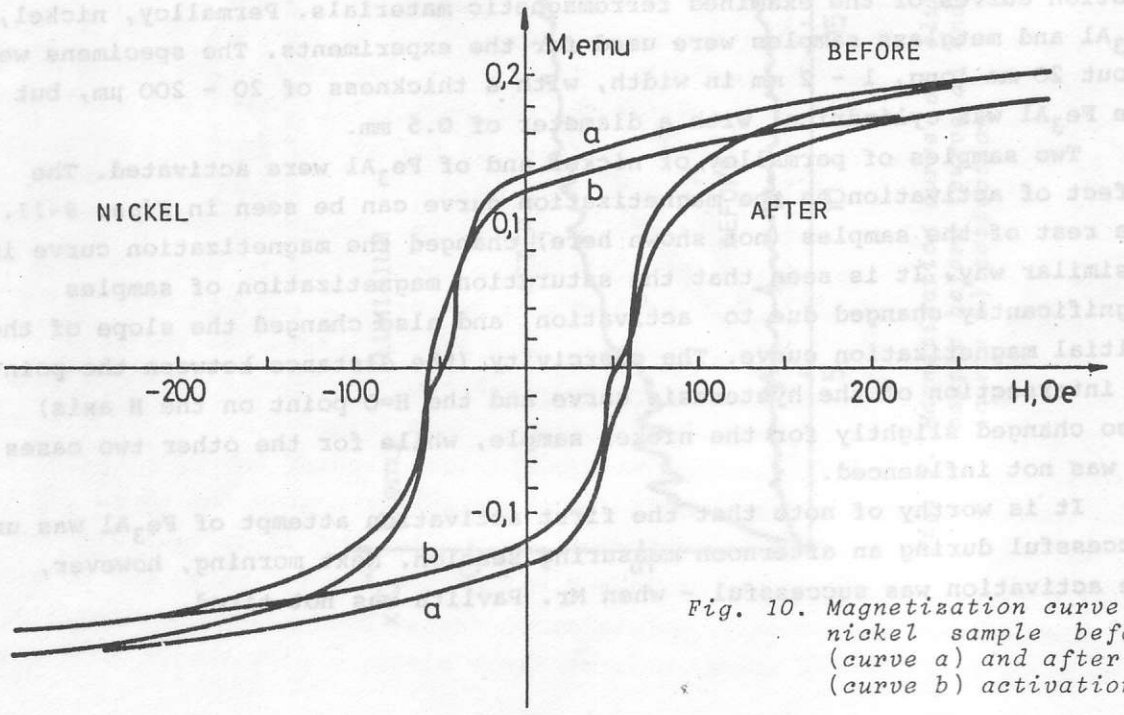

Fig. 10. Magnetization curve of nickel sample before (curve a) and after (curve b) activation.

It is remarkable that the value of saturation magnetization (i.e. magnetization value M, which is reached by the hysteresis curve at high field region) decreased in the case of permalloy and nickel, due to activation, whereas activation increased it in the case of Fe_3Al.

The magnetization curve regained its original shape after three - four days, as can be seen from *Fig. 11*, where the broken line shows the original curve, and continuous lines show the curves after activation, where N represents the number of days after activation (N=0 is the result of measurement immediately after activation). A similar process is illustrated for the permalloy specimen in *Fig. 12*.

The other part of the activation of ferromagnetic materials was made on metglass samples. Metglass (=metal-glass) material is a new and intensively studied type of metal. These samples are, in fact, amorphous iron alloys whose structure is due to the very rapid quenching.

Two types of metglass material were activated, the composition of the first material was $Fe_{40}Ni_{40}Si_6B_{14}$, the composition of the second one was $Fe_{75}Cr_5B_{20}$. Five samples of the first material were activated. The saturation magnetization and the slope of hysteresis curve increased significantly in three cases due to activation. The result is illustrated in *Fig. 13* for one of the samples. In the case of two samples the result of activation is shown in *Fig. 14*. It is seen that the saturation magnetization drastically decreased, and at low field region it shows a very strange character. Though the whole phenomenon is anomalous, these were quite unusual magnetization curves, and the same irregularity was found for two specimens. All five specimens were of the same material and they were activated in the same sonde (see Plates 1 and 2) having one activation chamber only, but the results (which can be seen by comparing *Figs. 13* and *14*) were quite different.

The time dependent behaviour of the magnetization curve of the activated specimen of *Fig. 14* is plotted in *Fig. 15*. (Here only the parts of the full hysteresis curves are shown, with decreasing positive fields.) After four days the hysteresis curve regained its original shape.

Two samples of the second metglass material were also activated. The activation procedure yielded the same result for both specimens, i.e. the saturation magnetization of the samples decreased, but not so drastically as in the previous case, as plotted (for one of the samples) in *Fig. 16*.

CONCLUSION

The major aim of the authors has been to carry out experiments on biologically induced magnetic anomalies in which physics itself is used to maintain the authenticity of the tests. This does not, of course, mean that in addition we did not try to ensure that no trickery was involved.

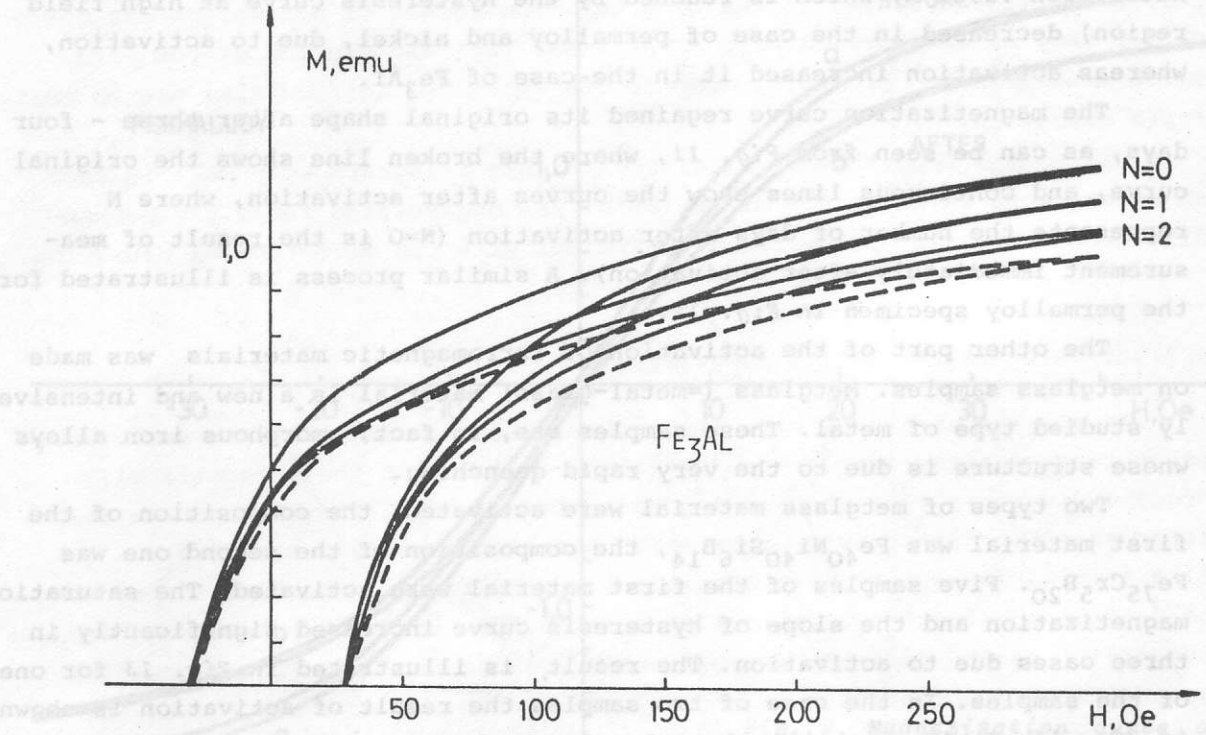

Fig. 11. Magnetization curve of Fe_3Al sample before (broken curve) and after (solid curves) activation. Parameter N represents the number of days after activation.

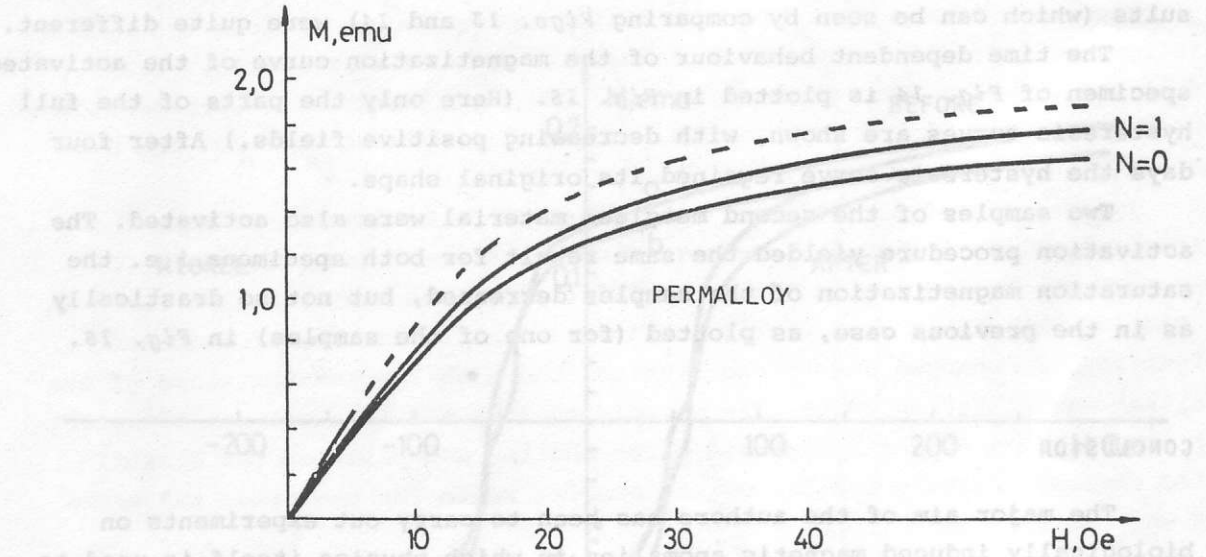

Fig. 12. Change of the magnetization curve of the permalloy sample of Fig. 9 in time. (Broken curve: before activation, solid curves: after activation, N: number of days after activation).

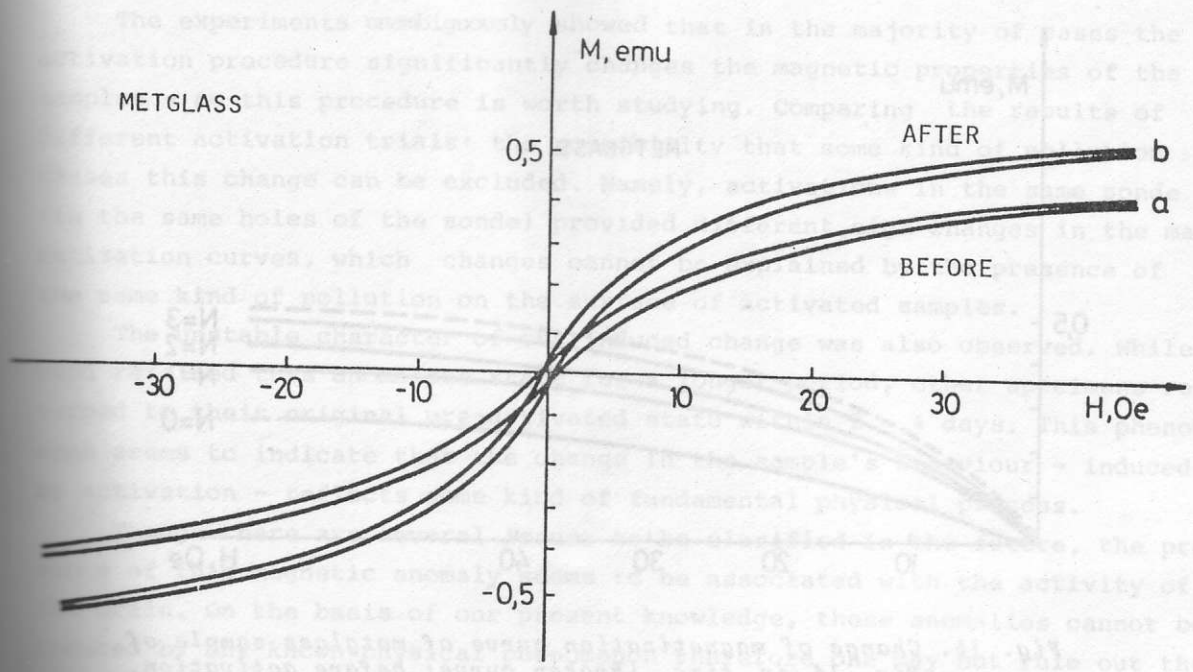

Fig. 13. Magnetization curve of metglass sample $Fe_{40}Ni_{40}Si_6B_{14}$ before (curve a) and after (curve b) activation.

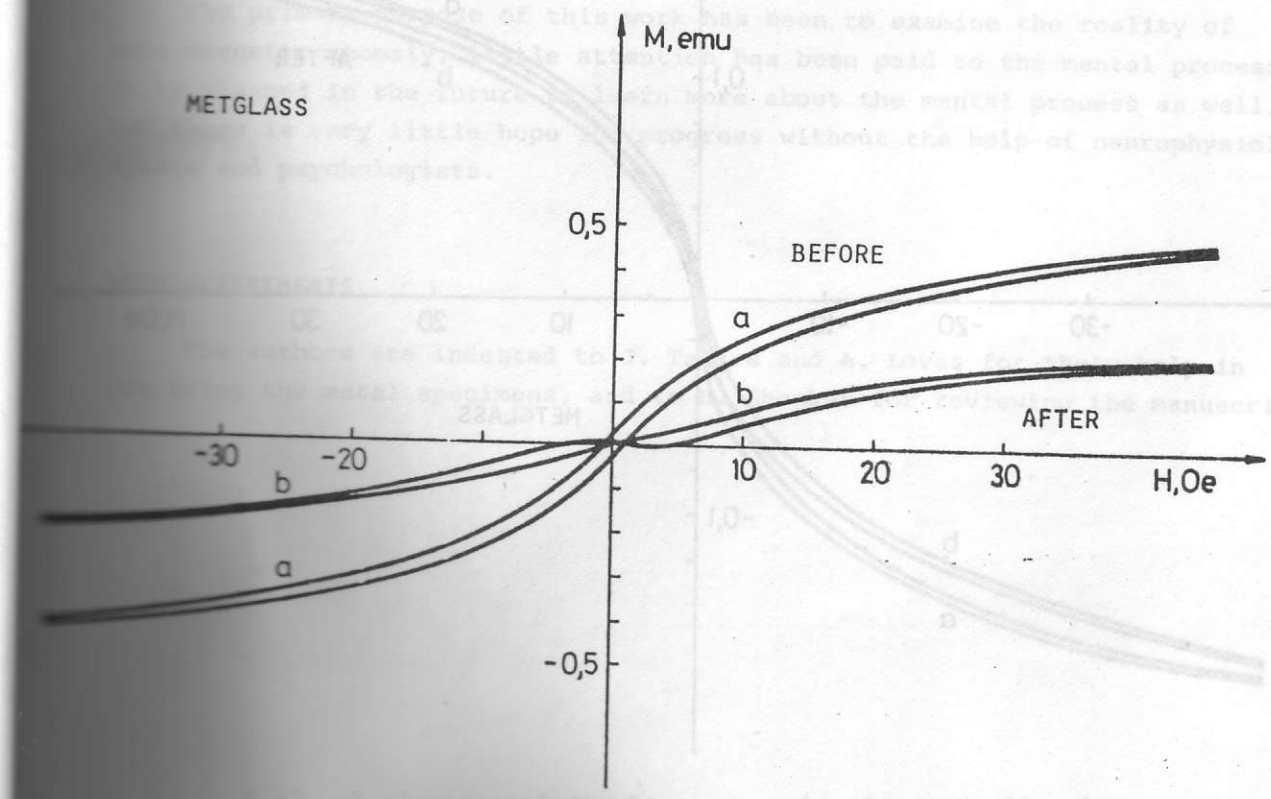

Fig. 14. For caption, see Fig. 13.

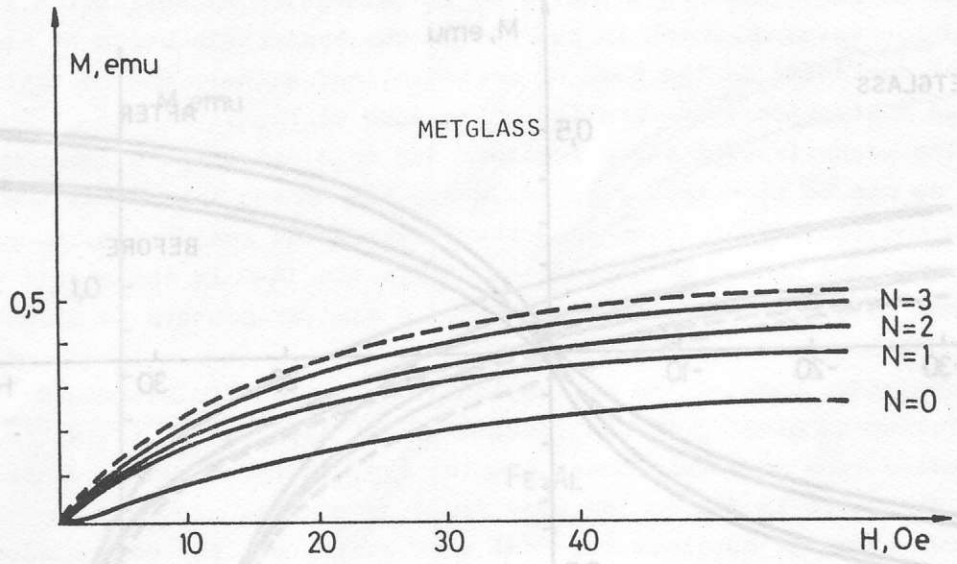

Fig. 15. Change of magnetization curve of metglass sample of Fig. 14 in time. (Broken curve: before activation, solid curves: after activation, N: number of days after activation.)

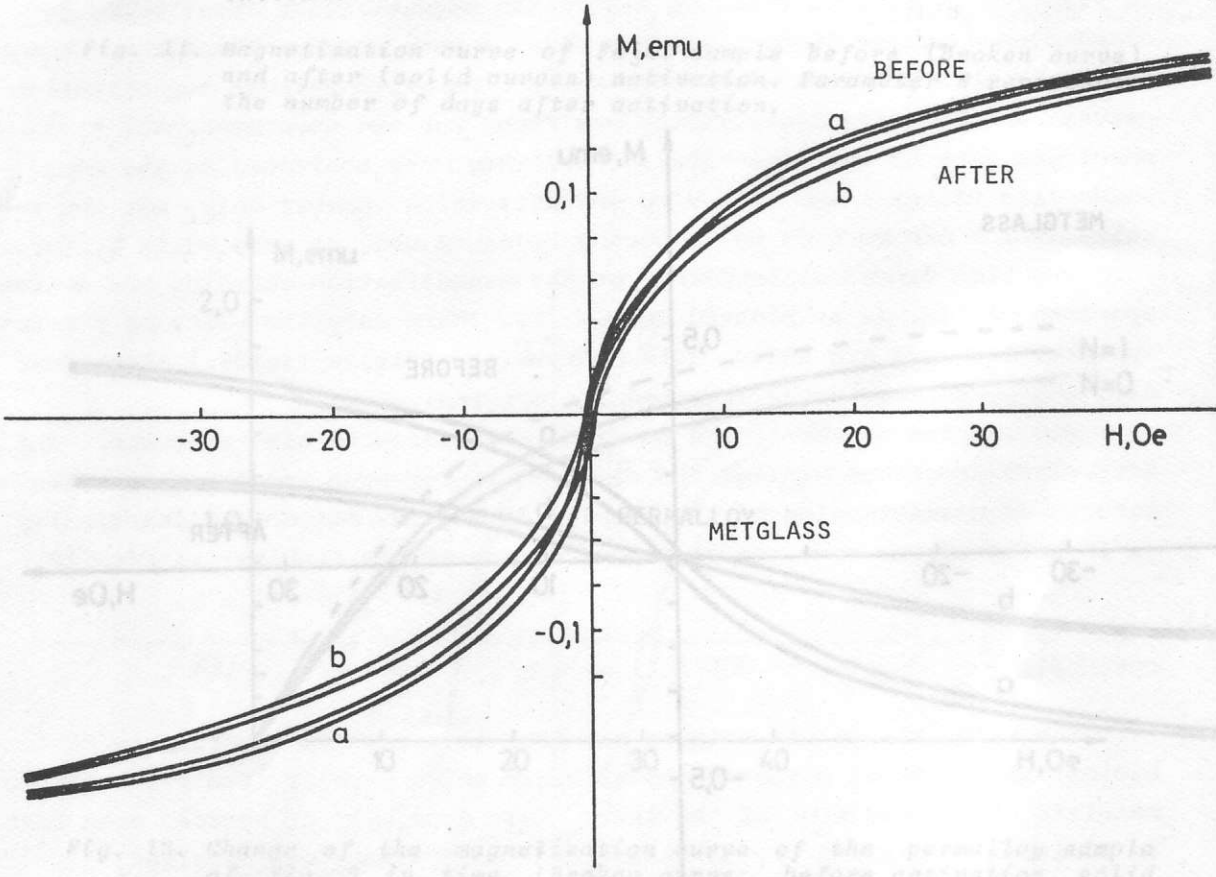

Fig. 16. Magnetization curve of metglass sample $Fe_{75}Cr_5B_{20}$ before (curve a) and after (curve b) activation.

The experiments unambiguously showed that in the majority of cases the activation procedure significantly changes the magnetic properties of the samples - so this procedure is worth studying. Comparing the results of different activation trials, the possibility that some kind of pollution causes this change can be excluded. Namely, activations in the same sonde (in the same holes of the sonde) provided different sign changes in the magnetization curves, which changes cannot be explained by the presence of the same kind of pollution on the surface of activated samples.

The unstable character of the induced change was also observed. While wood retained this anomalous state for a longer period, other specimens returned to their original pre-activated state within 2 - 4 days. This phenomenon seems to indicate that the change in the sample's behaviour - induced by activation - reflects some kind of fundamental physical process.

Though there are several issues to be clarified in the future, the presence of this magnetic anomaly seems to be associated with the activity of the brain. On the basis of our present knowledge, these anomalies cannot be induced by any known physical phenomenon therefore one may not rule out the statement that the brain activity involves a yet unknown physical phenomena. At the same time we have no doubt about the necessity of further considerations and investigations if we wish to exclude or strengthen the possibility of other possible interpretations, in spite of the fact that for the moment we have no idea about other explanations which are in keeping with our classical knowledge.

The primary purpose of this work has been to examine the reality of this magnetic anomaly; little attention has been paid to the mental process. It is planned in the future to learn more about the mental process as well, but there is very little hope for progress without the help of neurophysiologists and psychologists.

ACKNOWLEDGEMENTS

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TEXT TO PLATES

Plate 1 Rear of a single-chamber Pavlita Activation Device (PAD). The cylindrical shaped part on the right-hand side is made of plastic material. The whole PAD is made of solid steel, except the plastic part. The rear surface is smooth. (A scale - in centimeters - is shown in front of the PAD.)

Plate 2 Front of the PAD. The activation chamber is visible in the centre, there are two small protrusions beside it, made of the same material as the rest of the PAD (the whole sonde was manufactured from one piece of steel). The surface of the sonde is covered with grooves. During the activation the sonde was held in the left hand - between the thumb and the forefinger; the specimen to be activated was held in the right hand.

Plate 3 A twin sonde with several activation chambers. The activation part is made of steel, the thinner rod and the hollow cylinder (on the left-hand side) are made of brass. The surface is smooth, polished on both sides. During the activation, the fingers of the left hand were inserted into the brass cylinder.

Plate 4 Rear of the twin sonde. (A scale - in centimeters - is shown in front of the sonde.)

Plate 5 Enlarged picture of the twin sonde.

Plate 6 Enlarged picture of the activation chambers; the bottom and the walls of the chambers are visible. The walls of the holes are quite smooth, but there are grooves on the bottom. These grooves were not sharp, they left no marks on the activated specimens.

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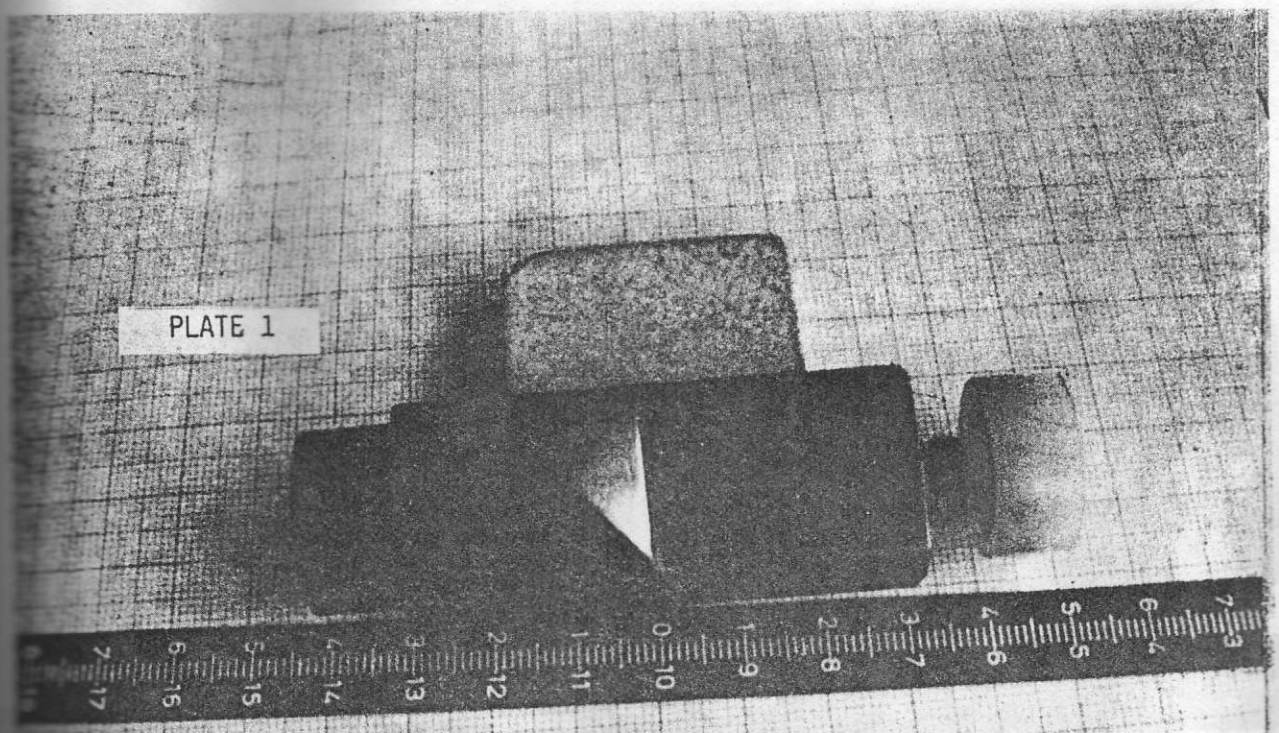

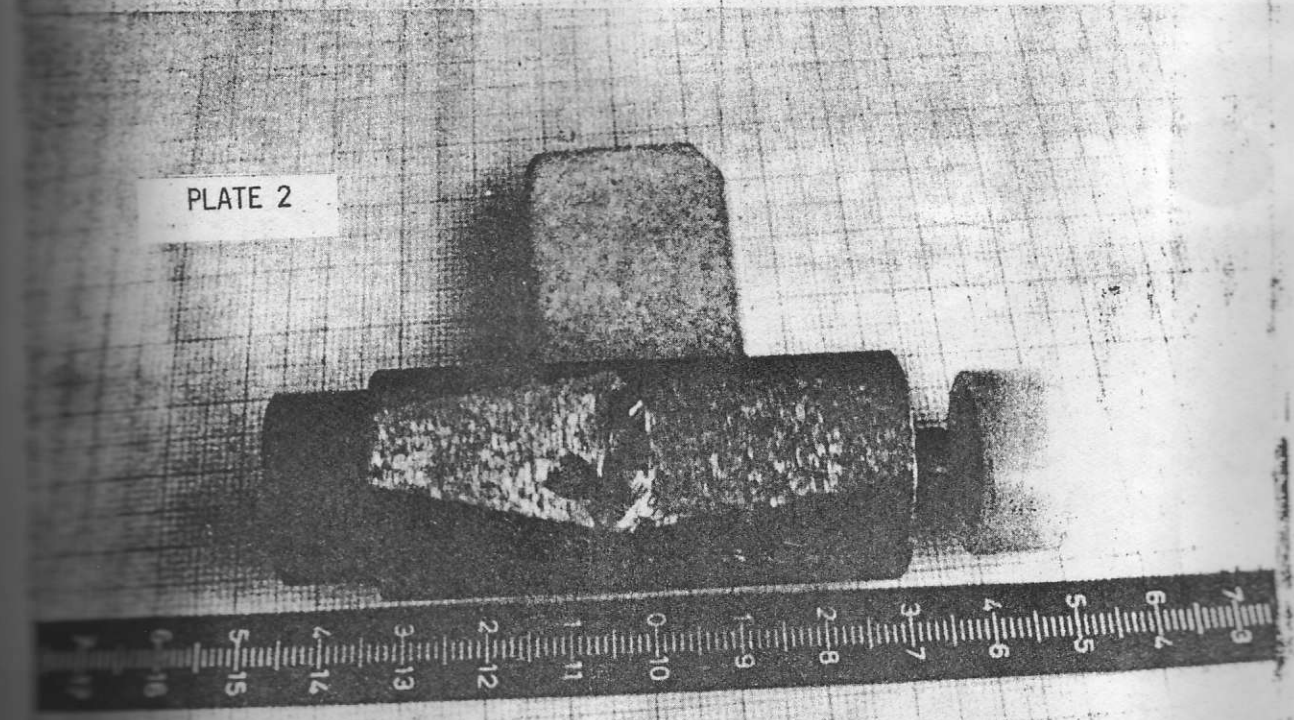

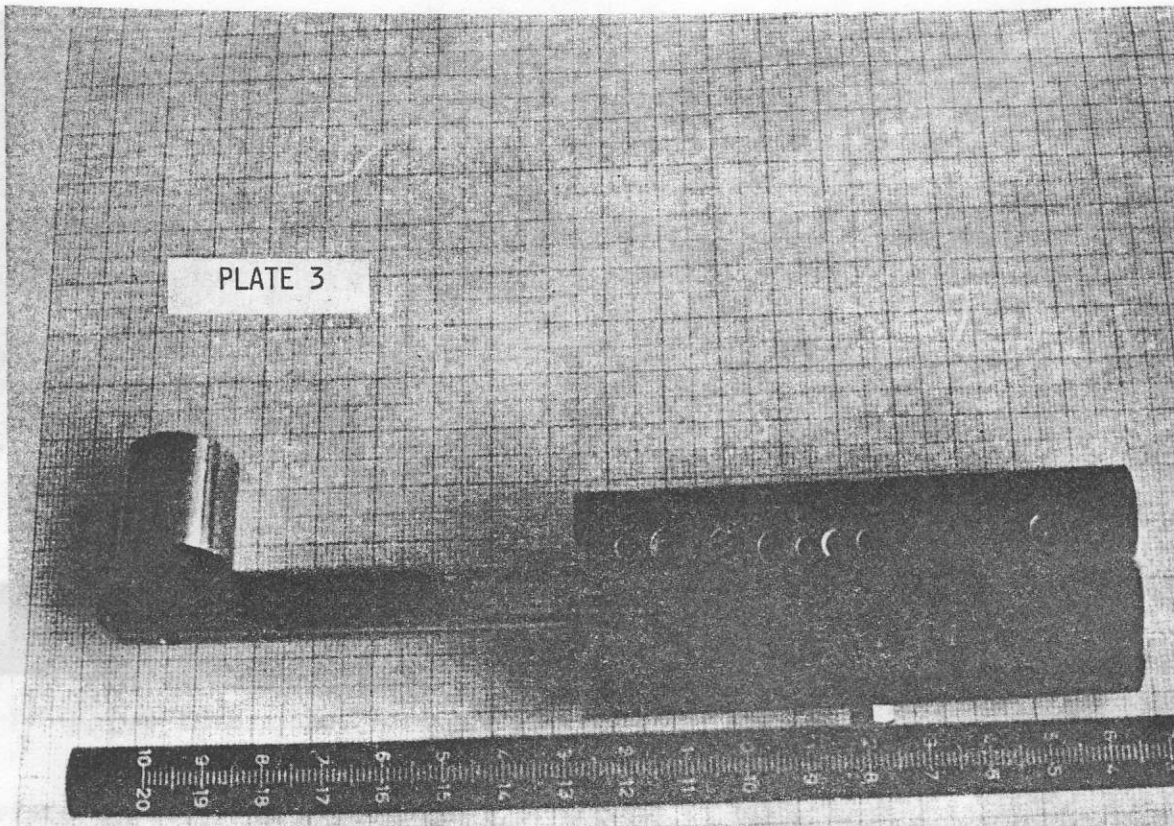
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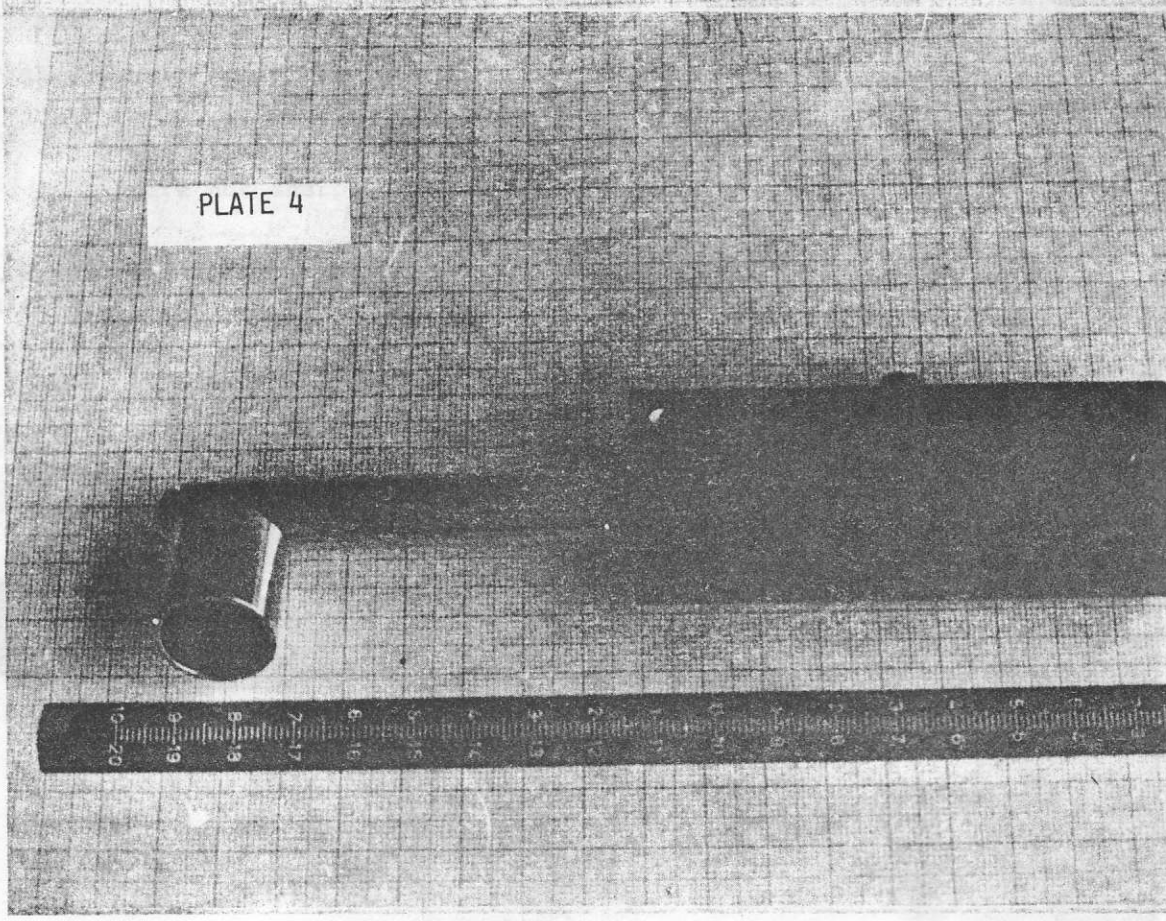
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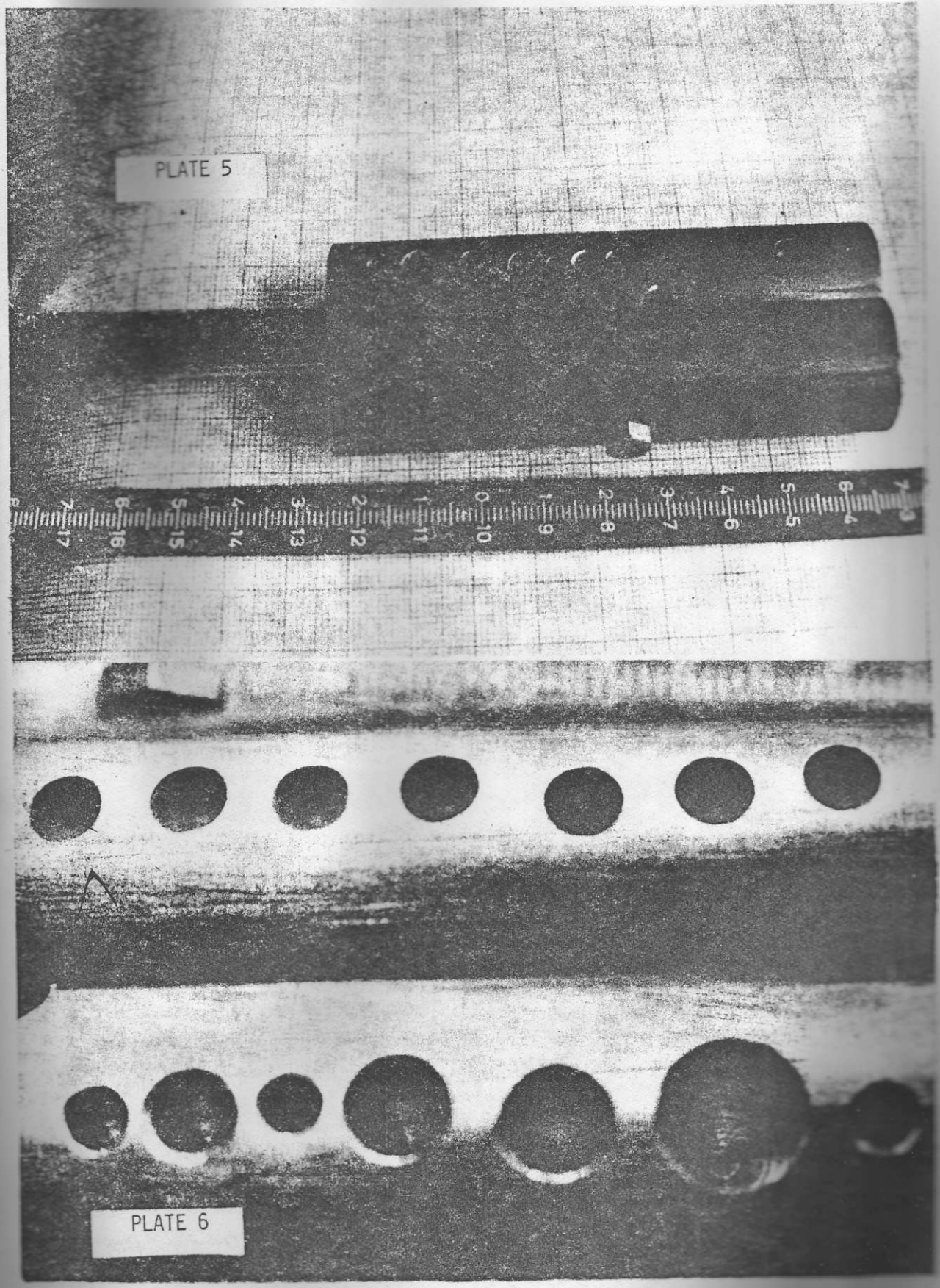
PLATE 5
PLATE 6