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| SEPTEMBER 1973] *Investigation of a Divining Instrument*  |  |
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|  | INVESTIGATION OF A DIVINING INSTRUMENT CALLED THE 'REVEALER' by M. R. BARRINGTON and J. W. STILES I. PRELIMINARY IN 1968 the ESP Committee (the Chairman was then the late Dr R. G. Medhurst) became interested in a device marketed by J. C. Oliver (Leeds) Ltd. under the name of the 'Revealer'. According to the publicity pamphlet 'The Revealer detection instrument was invented by Mr L. J. Veale, a building contractor, in 1956. . . . The Revealer is largely used for building and civil engineering work and, by using it, the operator can easily determine the position of underground services. It is possible to locate both metallic and non-metallic objects, determine their composition and approximate depth and in the case of pipes, the approximate diameter. . . . The instrument has been used to detect a buried service at a depth of 205 ft., thus an operator can easily locate sewers, pipes and cables and other materials usually found much nearer to the surface of the ground.' These are impressive claims to make for a device that is in essence a divining rod; for despite its more elegant format the Revealer is a quasi-hazel twig rather than a piece of scientific apparatus. In the words of the pamphlet, 'the Revealer is nonelectric and consists of two detector cylinders of chromium plated copper each with a 21" indicator rod pivoted on it at right angles. To ensure accurate location and freedom of movement, the indicator rods are mounted on ball bearings. The detector cylinders are so constructed that normally the indicator rods remain parallel but when the operator moves over any mineral deposit or service etc., the rods swing inwards across each other, indicating the position of the object. The mineral bracket attached to the right hand cylinder is used for determining the composition of the object'. A full description of the instrument will be found in Appendix A. Students of psychical research will be well accustomed to confident assertions concerning the abilities of people who prove unable to demonstrate their powers or the efficacy of apparatus designed to work by magic rather than by natural law. Such tales of wonder are not usually subjected to a full scale scrutiny because the informants do not inspire sufficient confidence. In the case of the Revealer, the distributors supplied with their literature a  |  |
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| *Journal of the Society for Psychical Research* [VOL. 47, No. 757 'Selected list of users of the Revealer detection instrument in the United Kingdom'. The list named over 100 very respectable local authorities, statutory undertakings, public utilities, engineering companies and other commercial enterprises many of which are household names. Since there did not appear to be any known scientific reason for the Revealer to function as a detection instrument it seemed evident that if it worked this could be due to Ε SP; and it is not every day that one reads of building surveyors and steel contractors 'using' ESP in the course of their ordinary day's work. We felt that it was worth finding out if some hundred representatives of responsible businesses and authorities had indeed laid out £72.10 on a divining instrument, and with what results. Accordingly, the following letter and questionnaire were sent out to all the organisations named in the selected list that could be located : THE SOCIETY FOR PSYCHICAL RESEARCH The Engineer and Surveyor Dear Sir The Revealer This committee is attempting to investigate claims made with regard to the above named divining instrument manufactured by J. C. Oliver (Leeds) Ltd., whose literature states that you are users of the Revealer. Our interest is, of course, in whether or not successful use suggests the operation of extra-sensory perception, and we should be very much obliged if you would be kind enough to complete the enclosed questionnaire and return it to us. Replies will be treated as confidential, and no reference will be made in any report to the name of any person or body without an authorisation. May we thank you for your kind co-operation in this matter? Yours truly, for the ESP Committee  |  |
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NAME OF COMPANY OR CORPORATION:

ι. What is the result of attempts made with the Revealer to locate the

following (please tick where applicable) :

Succeeded Failed

PIPES (not containing water) in

IRON ..........................

LEAD ..........................

COPPER ........................

OTHER MATERIAL ..............

PIPES (containing water) in

IRON ..........................

LEAD ..........................

COPPER ........................

OTHER MATERIAL ..............

MATERIALS:

WATER ........................

GAS............................

OIL ..........................

CHALK ........................

SAND ........................

CLAY ........................

CONCRETE ....................

OTHER MATERIAL ..............

ELECTRIC CABLES

LIVE ..........................

DEAD ..........................

ANYTHING NOT LISTED ABOVE

2. How many people using the Revealer have

SUCCEEDED ....................

FAILED ........................

BOTH ..........................

HAD UNVERIFIED RESULTS ........

3. Did some/most successful users have special characteristics, such as

belief in their power to use the Revealer?

4. Can some/most successful users succeed using ordinary dowsing

forks?

5. Do you think that some/most successful results may be due to

subconscious noting of physical indications?

6. Do you think that some results may/must be attributed to an unknown

faculty or factor?

7. Is there anything you can add by way of comment ?

(Signed) Position:

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II. REPLIES TO QUESTIONNAIRE

Out of 93 organisations (of which 43 were local authorities) 60 replied, a response rate of 63 %, much higher than we had anticipated. A surprisingly small number of the respondents gave the Revealer a positively adverse report; three denied all knowledge of it, two said they considered it useless, and four found it to be of little use. The other assessments were favourable, though not more than nine claimed consistently successful results. A fair number of the questionnaires were completed in detail, while in other cases, especially where the data were sparse, the form proved (like most forms) unsuited to the particular circumstances. Some of the replies given were extremely vague—perhaps recollected after a considerable lapse of time and sometimes when the operator had long since left the organisation. In a minority of cases fairly detailed records appear to have been kept, so that successes and failures in locating different materials could be entered in reply to the questionnaire. An analysis of the replies given (somewhat simplified to assist comprehension) will be found in Appendix B.

What does not appear from the analysis is the flavour of the various comments made either in the body of the questionnaire or in separate covering letters. We should say at this point that some of our correspondents went to great trouble to give us their views and describe their experiences, and we should like to express our appreciation. One undertaking sent us copies of reports on trials carried out within the department to test the instrument. The information was given 'in strict confidence' and it is possible only to summarise the contents.

In general our informant was satisfied that the Revealer 'had performed its work satisfactorily'. He added that 'each instrument saved its purchase cost many times over, and I regard it as being a reliable adjunct for the location of buried objects'. It is only right that we should here enter the caution that this engineer very frankly made it clear that he had authorised the purchase of the Revealer instruments, so he may have been somewhat biassed when it came to reporting on their cost effectiveness! Having made this cynical observation it is fair to add that his conclusions were supported to a large extent by the assistant engineers who undertook the testing. The first report was to the effect that the route of a pipe could be located by the Revealer 'reasonably accurately', though the identification of size, depth and type of material was less reliable. The second test was somewhat disrupted by a fresh wind, always a hazard with the Revealer. In the third group of tests 'partial proofs were obtained'. It is evident

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from the report that the engineers did not bear in mind that persons who knew the location of a pipe should have been absent while the operator was tested by reference to that pipe, and we are bound to maintain a reserve in the face of these favourable reports from what no doubt were capable professional men. Unfortunately it was not possible to arrange for one of the successful operators to be tested by the members of the committee ; if tests can be undertaken during the coming spring or summer a fresh report will be submitted.

So far as the other replies to the letter and questionnaire are concerned space does not permit any full scale reproduction of the many comments and observations made there. We have however made a selection of the sort of material that could not be entered in any useful way in the table set out in Appendix B. Opinions on the efficiency of the appliance passed through all shades of opinion from unequivocal rejection, through disenchantment, to something approaching rhapsody. This will be evident from the following excerpts, which have been grouped under several headings.

EFFECTIVENESS IN GENERAL

\* i. We have never been able to get positive results from the

use of this instrument.

48. After a number of failures we have stopped using the instrument.

27. After io years ... convinced that success is pure luck . .. first impressions were favourable.

11. Various members of my staff used the detector from time to time sometimes with apparent success but I would exchange it for a set of accurate records any time.

44. When I first purchased the Revealer I believed in it but have now lost confidence in it—so that it now gives me the results I would like to have. In the early days my results were nearly 100%.

9. Members of our outside staff claim to use the Revealer quite regularly for the purpose of locating pipes . . . used by some in preference to more scientific devices.

16. Very useful in tracing underground services.

25. The instrument can separate lead and copper pipes in the same trench ... it will give a reasonably accurate estimate of depth.

\* The numbers refer to the list of organisations given in the table set

out in Appendix Β.

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7. No doubt the cost of this instrument has been recovered by

the saving of expenses in finding lost sewers and manholes.

38. I rely on my Revealer as a most excellent instrument.

TEMPERAMENT OF OPERATOR!

4. A man of placid temperament may get results where a

nervous man may not.

3. Some operators are temperamentally more suited than others . . . the member . . . who produced the best results was not notably more placid than others.

13. Great concentration necessary...

5. Over concentration seems to be a bad approach ... a relaxed

state gives better results.

6. None of the users feel they are endowed with any extra

powers...

2. We arrived at the conclusion that the operator must have special powers akin to water divining and without these the instrument was useless.

14. More imaginative users are probably more successful . . .

success tends to vary with the belief in the instrument.

6. There was a certain amount of scepticism before using the instrument for the first time.

MODE OF ACTION

36. We would regard results to some extent being associated with static electricity J content of the body.

31. Perhaps electricity in the body ... a peculiar factor is that with a right-handed person, the Revealer detects objects if the mineral bracket is attached to the rod held in the right hand. The reverse applies to a left-handed person.

4. Overhead electric cables can affect readings unless the recommended metal object is carried by the user to neutralise the interference.

51. It would appear that the instrument operates most successfully on warm humid days.

f A comment made by a member of the Society of Dowsers was : 'The sophisticated appearance ... its expensive cost, matter of fact instructions all tend to create confidence that it will work in the mind of the beginner. This calm confident state of mind is very necessary in dowsing or other ESP operations.'

Î Electricity was the most popular explanation given in answer to the question : 'Do you think that some results may or must be attributed to an unknown faculty or factor?'

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ERRORS AND MISINTERPRETATIONS

42. On several occasions, identical readings have been obtained parallel to the natural line of the buried object and would appear to be in some way a reflection.

26. A small orifice in clay through which water is moving can be cancelled out by holding the water bottle and clay beads—the normal interpretations for this would be an earthenware pipe containing water. Similarly, . . . water . . . running through an iron or steel pipe was ... in fact a discolouration of the chalk— presumably a water borne mineral, which could be cancelled out by holding the steel element. . . . 'rectangles' were located and normal interpretation indicated these to be iron or steel plates, frames or tanks ... an original survey then showed . . . where galvanised iron water tanks had stood a few years before.

ODD USES AND QUEER COMMENTS

25. I have found that I can locate directionally most persons

that are reasonably well known to me.

13. To determine whether a person smokes or not.

34. The two ... who failed had a rolling gait.

26. ... concentrated use of the instrument for two hours or

more makes me very tired mentally and physically, the reaction

being at its maximum 36 hours after using the Revealer. Further—

on arrival home from the office my wife can invariably tell when I

have used the instrument by the appearance of my face.

The replies taken as a whole give as favourable an account of the Revealer as one might expect to find in a consumers' report on the effectiveness of a vacuum cleaner. Some will say it has made all the difference to their lives, while others insist that a dustpan and brush cannot be bettered. Having rather expected replies more appropriate to a report on the efficacy of a witch's brew in casting spells, we felt that since the users, for the most part, treated the instrument as an ordinary working machine it must be worth while to proceed to the next stage of the investigation, an attempt to see the machine at work.

III. FIELD TRIALS

It was for obvious reasons not considered practical to approach every organisation that had put in a favourable report ; the most that could reasonably be attempted was to investigate a sample of

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| *Journal of the Society for Psychical Research* [VOL. 47, No. 757 those operators resident in London or the home counties who might prove willing to take part in tests designed to throw light on the workings of the Revealer and the capacities of its users. Accordingly, we wrote to sixteen of the listed organisations (nos. 4, 5, ii, 12, 13, 16, 17, 18, zi, 22, 29, 32, 43, 44, 46, 47), and twelve replies were received. We learned that three of the operators concerned had retired or left the organisation, one lived in Portland and another in Wales. The remaining seven organisations offered ten operators between them for testing by the committee ; of the ten, we were finally able to secure the attendance of five for trials, each one from a different organisation. Thus out of the 51 organisations from which more or less favourable replies to the questionnaire had been received we were able to test a representative from some 10% of the total number. I. TESTS **WITH MR H.R.** Mr R., an intelligent, sensible, middle-aged civil engineer, was the first volunteer. He was tested in Dr Medhurst's garden at Wembley, and later, on a separate occasion, in the sandpit at Bushey Park. It was in fact as a result of Mr R.'s comments that the original procedure, involving the use of plastic boxes filled with sand, was abandoned in favour of procedures more closely simulating the circumstances in which the Revealer is normally used. The box routine was as follows. Samples of materials such as copper, lead, steel, brass, aluminium, water and Void' (the latter specimen contained in a bottle) were each hidden in one of a series of identical sand-filled plastic boxes, approximately 3" along each side. The boxes were all numbered on the underside. The subject was shown a group of corresponding samples and asked to choose one for a test. The box containing the 'twin' sample was then taken by one of the experimenters together with nine other boxes containing nothing but sand and the ten boxes were placed by him in random locations on the lawn. As an added precaution against visual clues he covered each box with a duster and then retired from the area. A second experimenter, who did not know the location of the target box, then went out and rearranged all or some of the boxes. The third experimenter, who had remained with the subject and had not observed any of these manouevres, then took the subject out for a trial to see if he could locate the target box. Mr R. was not in fact able to perform any successful locations, but he attributed his failure to the unfavourable conditions. Normally he would walk rapidly over the area under investigation, 180  |  |
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| SEPTEMBER 1973] *Investigation of a Divining Instrument* first in one direction and then in the other. The presence of the boxes amounted to an obstruction. We saw the force in his criticism, and decided to reserve the boxes for use with subjects who might claim to dowse by means of a pendulum.\* All subsequent tests were carried out in the Bushey Park sandpit, which we were kindly permitted to use at restricted times. Our activities excited a certain amount of curiosity from children and others, but onlookers were usually overtaken by boredom within a short time, so that there was no danger of useful information being passed on to the subjects. We always ensured that the burying of targets went unobserved. The reason for the boredom of the spectators will be apparent from the following description of the procedure used when Mr R. was tested. TESTS USING IOO SQUARES The sandpit was approximately io yards wide and twice as long; half the pit was appropriated to the purposes of the committee. The test area was divided into 100 equal squares, and in order to suppress the obvious clue that would signal the location if the sand were disturbed only in the target area a trench about nine inches deep was dug in every square. In the absence of the subject and the experimenter who was to accompany him two squares were selected by drawing numbered counters from a bag, and a target was buried in each of the selected squares. The target consisted typically of a two foot long section of iron, aluminium, copper or asbestos pipe. The trenches were then all filled in and the sand well trodden down and raked over. The first and second experimenters, who had performed all this arduous labour, then withdrew in a state of some exhaustion, taking with them a plan of the test area on which the position of the two targets was marked. The third experimenter, who was equipped with a blank plan, then brought the subject to the test area and marked on his own plan the locations ultimately selected by the subject as the target squares. After completion of the test the third experimenter's notebook entries were compared with the actual location plan. Mr R. was in fact hardly more successful in the sandpit than he had been with the plastic boxes. One of his locations was in a square adjacent to a centrally placed target, but his other three locations bore no relation to the targets (P> .3). It must be said that Mr R. was at a disadvantage in two ways. Firstly, he was accustomed to the location of empty spaces (or 'voids') ; secondly, \* In the summer of 1970 a very pleasant woman teacher who asked to be given a test proved unable to demonstrate any divining gift. 181  |  |

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he was once more the guinea-pig in a routine that was not entirely satisfactory. It took two experimenters longer than had been anticipated to dig 50 trenches each, and Mr R. was not only kept waiting but had time for only two tests. As a result of this experience the procedure was further modified.

TESTS USING FIVE GRIDS OF IO SQUARES

For all subsequent tests the area was, as before, divided into 100 squares, but every alternate row of io squares was ignored. The five rows that were used constituted separate experimental areas, a target (selected as before) being buried in one of the io squares making up the grid. Thus if two tests were carried out on the same evening io locations could be made.

2. TESTS WITH MR J.N.

Mr N., a middle aged local government employee in the engineer's department was a down to earth sort of person, and quite matter of fact so far as the Revealer was concerned. He said that his father had had some success with dowsing, using a twig. He himself regularly used the Revealer in his work for locating services and found it 'a great time-saver'. He said that the user had to have confidence in the instrument, and he was very confident about his locations in the sandpit. In the first test he unfortunately insisted on specifying more than one location in two out of the five trials; indeed, we found that once a subject made up his mind that the Revealer had pointed to a buried object it was difficult to persuade him that there was in fact only one object buried in the io square grid and that only one location should be made. Despite Mr N.'s seven locations none of them corresponded with the target square, and only one was in an adjoining square. In the second test he was somewhat more successful in that two out of his five locations were in an adjoining square (P> .3).

In his attempted identification of materials Mr N. could hardly have been further from the mark, and this proved to be a general finding with all the subjects tested. It is only fair however to salvage from the debris of misplaced confidence a fairly successful outcome to a more informal experiment performed during the interval between the two tests in the sandpit. One of the experimenters (Mr Stiles) took him to a remote stretch of the park and asked him to locate a buried pipe in the area; Mr N. did indeed locate the point where the pipe emerged into a ditch (completely hidden by vegetation) after plotting the line of the pipe to within

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io degrees of its true location. Unfortunately this cannot be put forward as a reliable result, since the experimenters knew the location of the pipe (or at least the location described to Mr Stiles by a park official), and though Mr Stiles was careful to keep as far as possible out of Mr N.'s sight his presence renders the test theoretically suspect.

3. TESTS WITH MR G.S.D.

Mr D. was a district engineer employed by a statutory undertaking, and he had been using the Revealer for some five years. Like the other volunteers, a practical middle-aged man, he was (unlike some) perfectly amenable to the procedure under which only one location per ίο-square grid could be made. He did not succeed in locating any of the target squares, but three of the locations were in squares adjacent to the target square and four were in squares two away from it (P> .2). The scoring rates, marginally better than chance expectation, while a source of mild disappointment to the experimenters were cause for bemused incredulity to the subjects, who tended to regard poor performances as freak events.

4. TESTS WITH MR R.J.A.

Mr A. was a middle-aged assistant in the civil engineering department of a railway authority. He expressed an interest in philosophy and psychical research in general. He had not had very great experience with the Revealer, but claimed considerable success on those occasions when he had worked with it, and said that among other things he had located an unexploded bomb. He was brisk and businesslike in his approach, and he used an instrument similar in principle to the Revealer but actually made in his workshops. Unfortunately, in the course of io trials he made two or three locations in three trials, and in two of the trials he made no location at all. Taking the five trials in which he confined himself to making one location there were three correct findings (P < .01)\*, A diagram showing the actual targets and the subject's locations is to be found in Appendix C.

It will be seen that Mr A. was by far and away the most promising of the subjects tested, and a further test was arranged with him as soon as possible—which was however not until August of the following year. This was a most unpropitious occasion, as on

\* All Ρ values cited are one-tailed cumulative probabilities derived from the binomial distribution.

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APPENDIX A

THE REVEALER

(Application for patent made January 1958)

The instrument consists essentially of a pair of L shaped metal rods the short limb of each being set into a cylindrical handle in which it freely rotates. The long arm of the L (referred to as the 'indicator') is in two parts for convenient storage. When joined by screwing into a threaded sleeve they form a rod some 21" in length. There are certain calibration figures stamped on the rods. The handle carrying the short limb of the L is a chromium plated copper cylinder some 9" in length and f" in diameter, closed top and bottom by metal caps. The cylinder is divided into compartments by floating copper discs. The compartments are described as :

(1) Needle compartments, each containing 8 copper needles the ends

of which are set into dimples in the surface of the discs. The needles

are arranged in a circle around a central sleeve extending along the

length of the cylinder in which the rod rotates.

(2) Dust compartments filled with metal filings.

(3) Spring compartments, each containing a light gauge coil spring

to hold the needles in position.

The short limb of the rod may be provided with a wire that serpentines in and out through apertures in the rod 'for greater sensitivity\*.

In use a rod is grasped in each hand, the cylindrical mounting being held vertically; the slightest tilting movement will cause the rod to rotate about a vertical axis.

There is also supplied a 'mineral bracket', which can be attached to the right hand cylinder. It is used to determine the composition of the located object. Specimens of various materials are threaded on an elastic cord mounted on a curved frame that clips on to the cylinder. A user attempting to trace a material not included in the bracket is advised to hold a specimen in his right hand (e.g. a tube of water) to confirm a finding.

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