



THE BLACK VAULT

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Let Russians New Sleep Machine

...scientists have come up with a
...claim will crowd a full night's
...and two hours—and help treat
...disturbances too. Here is an
...report from Moscow

By Dr. CYRIL SOLOMON

The New Medical Consultant

Moscow

...IN THE SOVIET UNION are rapidly
...machines which may have a pro-
...what is called a good night's
...the Russians test this device
...electrosone, which they claim packs
...of sleep, restful sleep into two hours, or less.
...physicians say the electrosone will have an even more
...role as a dramatic new weapon in medicine's fight to
...disease.



...electrosone I observed looks like a ham radio opera-
...receiving set, complete with dials and gauges. But, in
...the earphones there is a mask-like leather and cloth
...The machine itself is 20 inches long, 12 inches high
...inches deep. It's portable and weighs just 20 pounds,
...the same as an office typewriter.

...how the Soviet doctors explain the machine's
...by transmitting harmless electrical impulses through
...at quickly and painlessly brings about complete
...of consciousness. The electrosone produces condi-
...actly duplicating deep, natural sleep: muscles relax,
...and respiration slow down, blood pressure drops and
...omatic abdominal breathing.



...WHAT IT'S LIKE THIS WEEK when Eric Lombard fell on
...in a New York hospital. He reports: "I heard a
...tickling on my eyelids, and my eyelids began to
...soon stopped. Next thing I knew I was asleep. It
...ten minutes, but actually it was an hour, and I
...dropped from 160 to 120 my blood pressure from 15

To make two hours sleep equal eight

takes over from thoracic (lung) breathing. If what they say is true, the implications for everyday living are obviously tremendous. We would all have several extra hours a day to use either for productive work or for leisure time activity. In a way, it would be like adding a couple of extra days to every week.

Physicians in the United States are now making initial tests with the electro-stimulator. At a recent meeting of the American Congress of Physical Medicine and Rehabilitation, Dr. Bernard S. Post, Dr. Sigmund Forster and Dr. Joseph C. Benton, all of the State University of New York's Downstate Medical Center, New York City, confirmed many of the Russian findings. Using an apparatus patterned after the Russian electro-stimulator, they found that "even though the treatment apparently leaves the subject of a full night's rest. They also confirm that their sleep machine helps spastics to start their muscles and can help some victims of multiple sclerosis, cerebral palsy and paraplegia. Other researchers hope to use the electro-stimulator to correct various psychiatric disorders.

The word got around

"I first heard of the electro-stimulator from colleagues who studied in Moscow on a medical exchange program. I decided I would look into the electro-stimulator when I came there to attend the recent International Cancer Congress.

Sasha, my attractive Intourist guide, found it easy to arrange a visit with Dr. H. Lipaty and Dr. Henry Patton at the Institute of Therapy. I watched Dr. Patton demonstrate the apparatus to an assistant. He placed oval patches over each eye, and fastened thin straps behind her ears, giving a Halloween mask effect. Electrode pads of absorbent material were soaked in salt water to help conduct current.

The electrodes over the eyes are connected to the negative pole and the electrodes which fit behind the ears are attached to the positive pole of the generator. Current running through the electrodes and into the patient is five to 115 milli-amperes. (An ordinary household lamp uses 21,250 milli-amperes.) The impulse current through the electrodes at approximately the same time

brain waves register on an electro-encephalogram. The principle behind the Russian sleep machine is simple. A weak, rhythmic electrical impulse is sent to the part of the brain which controls sleep and metabolism, dulling you into a sleep, natural sleep. Soviet doctors say the electro-stimulator puts a patient to sleep the same way a rocking cradle puts a baby to sleep. But, in this case, the sleep is so deep and achieved so fast, that the patient wakes up fully refreshed and invigorated in fewer hours.

Dr. Alexandre N. Obrosow, Russia's leading expert on electrical sleep, told me:

The generator is easy to operate and may be connected to a simple electrical outlet. It should be turned on for a minute so the tubes develop an operating temperature. While the tubes are warming up, the patient is placed on a comfortable couch. The low-frequency current is turned on, sending electrical impulses to the base of the brain, the cerebellum and the medulla. The pulsations lead to an inhibitory process.

The patient should not experience any discomfort. Gradually, he enters an increasingly deep feeling of tiredness and a slight feeling of dizziness. Finally, the patient falls into a deep, peaceful sleep.

It generally takes less than ten minutes for the patient to fall asleep. Hence the treatment design, Dr. Obrosow says. All his findings indicate electro-stimulator sleep is superior to sleep induced by drugs or anesthesia, and is more restful and reproduces no ill effects.

Physicians using the electro-stimulator say their patients have pleasant dreams when they happen to remember them at all. And a two-hour treatment with the electro-stimulator leaves the patient fully refreshed and invigorated, just as he would be after a full night of natural sleep.

Russian physicians reporting the electro-stimulator sleep machine to their high



Electro-stimulator. Electro-stimulator 75 min.

blood pressure, schizophrenia, manic-depressive and other psychiatric disorders. They also say the electro-stimulator will ease the pain of many other dread diseases.

Dr. Obrosow continued: "Electro-stimulator sleep was first used for patients at the Institute of Psychiatry of the Department of Health of the Soviet Union and soon became popular. It brought good results in schizophrenia. Many investigators believe results from over-exhaustion of the nervous system. Sleep therapy affords the brain cells the best opportunity for complete rest and restoration. Artificial sleep for 20 to 30 days can improve the function of the brain cells to the point at which the patient may return to normal capabilities."

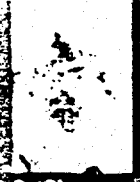
Sleep treatment

The late Ivan P. Pavlov, Russia's Nobel Prize-winning physiologist, first theorized that it was possible to obtain sleep with a weak external stimulus that would be rhythmic, continuous and of long duration. A pulsating current was one such stimulus. Pavlov's work provided the basis for the widespread use of electro-stimulator sleep treatment in recent years in the Soviet Union. In 1935, the reported success

fully treating a case of cataplectic chorea with non-electrical sleep therapy. This stimulated more experimentation. The electro-stimulator now being used all over Russia was invented in 1951 by the late Dr. V. A. Gilyarevski, first to use the machine induced sleep treatment in patients.

Russian physicians reported encouraging results treating other nervous diseases. Spastics, they say, often improve after minutes of about 12 to 15 treatments with the sleep machine.

Dr. N. M. Levitsky provides the results of the electro-stimulator sleep



Electro-stimulator mask.

STUBBORN *Quilments*

trozone. He said patients must be in a relatively calm state and when treating nervous disorders, organically healthy. Dr. Liventzky told me that after several electrozone treatments some patients often are able to fall into the same deep, restful sleep without the current being turned on.

This, Dr. Obrosoff pointed out, proves Pavlov's conditioned-reflex theories. In the Soviet Union all nervous disorders are treated on the basis of Pavlov's work. In the United States Sigmund Freud's work is usually basic.

Obrosoff and Liventzky have had noteworthy success using the electrozone to treat hypertension—high blood pressure. In one clinic a third of the beds were devoted to treating hypertensives. One sleep machine can administer to four patients simultaneously. Six were used in all.

Hope for hypertensives

They recorded the results of electro-sleep on 1300 hypertensives. With labile hypertensives, patients whose blood pressure varies from normal to high, the electrozone was an unbelievable 100 per cent effective. In stable diastolic hypertensives, patients whose blood pressure remains consistently high (too much peripheral resistance of the blood vessels in the kidneys and extremities) the machine was said to be 70 to 80 per cent effective. It did not work at all with organically ill hypertensives.

I discussed with Dr. Liventzky the electrozone's effect on one hypertensive, a 29-year-old male. The patient's blood pressure registered 170/110. Normal blood pressure for a man that age is about 135-110/90-70. After four months of electrozone treatment his reading improved to 140/86.

Electro-sleep treatment to hypertensives is given six days a week for 30 minutes. After two weeks, treatment is increased to 40 minutes. Many hypertensives are treated for several weeks in hospitals and later shifted to out-patient status. Then treatment is every third or fourth day.

World-wide electrozone use

The Soviet doctors told me they are also experimenting with the electrozone to treat insomnia, hallucinations, ulcers, bronchial asthma and encephalitis. Russian medical journals show they also are trying to treat psoriasis, rheumatism, scabies, burns, tuberculosis and toxemia of pregnancy.

Personally, I think the Soviets are overenthusiastic. But some of the electrozone is spreading. Japanese manufacturers have a transistorized model, which, claim the Russians, "is very good." Physicians in France, Italy, Czechoslovakia and Germany are experimenting with the electrozone.

As you learn more about how the machine affects the mind and the body you may expect to find further applications for it. When tests are completed, they in the U.S. and all over the world are completed.



So soft you forget
them so safe that
you can...

Hems

Something real

SCIENTISTS HAVE LONG DEBATED THE NECESSITY OF EIGHT HOURS OF SLEEP IN EVERY TWENTY-FOUR

THERE ARE CASES ON RECORD of men living natural, healthy, active lives on one hour's sleep in every twelve. In Russia there is a funny model electric shock machine on the market which induces "deep sleep" for two hours - thus leaving a man free to work the other twenty-two. The world of the not-too-distant future, therefore, may well offer mankind the chance to go without sleep altogether.

In THE JINSLEEP television era boom but their glad tidings, "Six Wake adds thirty years to your life!"

No one wants to resist this happy prospect, even though everybody is working only four hours a day, four days a week; the populace joyfully accepts yet another eight hours a day of waking leisure and embarks on a merry-go-round of fun seeking.

Except for Peter Gregory, who stubbornly refuses to believe the human body can take it.

But in the mad whirl of pleasure, a "sleeper" stands out like a sore thumb, and indeed quickly becomes socially unacceptable. It is not merely a matter of being a rebel. A sleeper is a spooper at every party; he can't keep up his work quota; he certainly can't keep up with the urgent twenty-four hours a day demands of a loving wife.

And as Peter's personal problems become acute, so does the rising tide of public hysteria.

A Ballantine Science Fiction Novel
The JINSLEEP
Diana and Martin Gillon
Ballantine Books, New York 1962

First published 1961 by
Harri Books Ltd. London

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NECESSITY OF EIGHT HOURS OF
SLEEP IN EVERY TWENTY-FOUR**

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THE UNSLEEP, television sets boom out the glad "Six-Wake adds thirty years to your life!" He wants to resist this happy prospect, even though he is working only four hours a day, four days a week. The populace joyfully accepts yet another eight hours of waking leisure and embarks on a merry-go-round of seeking. Not for Peter Gregory, who stubbornly refuses to believe the human body can take it. The mad whirl of pleasure, a "sleeper" stands out on the thumb, and indeed quickly becomes socially unacceptable. It is not merely a matter of being a rebel. As a spooper at every party, he can't keep up his act; he certainly can't keep up with the urgent four hours a day demands of a loving wife. As Peter's personal problems become acute, so does the tide of public hysteria.

A Hallantine Science Fiction Novel
The UNSLEEP
Diana and Mair Gillon
Hallantine Books, New York 1962

First published 1961 by
Barrie Books Ltd. (London)

MAN

MAN AND DOLPHIN

John C. Lilly, M.D.

A World of Science Book

Pyramid Publications, Inc.

New York, New York 1962

Published by arrangement with

Doubleday and Company, Inc.

1962

MAN AND DOLPHIN

Usually the cycle is started with an expiration followed by an immediate inspiration. At 10.3 milligrams per kilogram we noticed that air was apparently leaking out of the lungs through the mouth rather than through the blowhole and that if all the air leaked out of the animal's lungs the second would reverse this usual respiratory cycle and start with an inspiration.

There was some doubt in our minds as to whether what we saw escaping from the mouth was actually coming from the lungs or whether it was from the stomach. Once in a while we would smell a baby odor that seemed to be stomach gas.

At 10.3 milligrams per kilogram this animal's inspiration finally failed too.

We must remember, of course, that this animal was out of water; that gravity was pushing his weight down on his lungs. His inspiration had become a stereotyped, mechanical, mechanical affair, which is quite unnatural, as we were to find out later. Apparently two factors caused the falling apart of inspiration and the loss of air into the mouth: the closing of a sphincter around the larynx (the nasopharyngeal sphincter) and the increased pressure in the lungs from the body weight pushing down on them, which does not happen in the water.

In an attempt to learn how an animal might be resuscitated, we had done some dissections of the airway on a seal in Baltimore and on the first animal. We discovered three different approaches through the blowhole, which is difficult because of the bony septum that goes down the middle of the blowhole below the opening of the blowhole. One approach is to pull the larynx out of the nasopharynx and insert a tube through the larynx into the trachea, or entering into the trachea through the outside of the throat. We quickly found that the trachea is extremely short and extremely wide, which would make it very difficult to insert through the throat and to seal a large enough tube without extensive damage. The second approach, through the mouth, seemed to be the only feasible one.

We did not know what air can be pushed tightly into the

In the human these areas of the brain give rise to an intense sense of well-being without any particular instinctual direction, that is, the sense of well-being is not sexual, nor connected with food, hunger, thirst, etc. In so far as we can determine, many of these systems are insatiable; they exert a powerful influence as long as the animal is awake, and repeating the stimulus again and again does not wear out the effect.

Using this "reward stimulation" technique, we demonstrated quite satisfactorily that a dolphin can vocalize in two different ways. One, in his usual fashion, under water, and the other by emitting air through his blowhole so that he produces air-borne sounds that we can hear. By changing back and forth between responding to him under water or in air we could induce a particular animal to emit his sounds either under water or in air.

There are, of course, many obstacles to a mutual understanding between dolphins and men. Consider their activities compared with ours. They have no written records and make no artifacts. They lack hands like ours and are not building anything. They have no need of transportation, because it is built in. They can swim at twenty knots and in a few days recover thousands of sea miles in a search for food or more desirable water temperatures. They have no need to store food, because it abounds in the sea for the taking. They have no need for clothing or shelter. They have no need for gravity-resisting forces of the magnitude that we do. Their gravity resistance is distributed over the whole integument, rather than on the bottom of the feet or on the buttocks as in our case.

Because they do not constantly have to resist gravity as we do, they do not need to sleep as we do. As we discovered, they cannot afford deep unconsciousness at all. From any cause—anaesthesia, epileptic convulsions, or a blow on the head hard enough to produce unconsciousness will kill them.

They do not seem to have the kind of automatic respiratory system that allows us to breathe while we are unconscious. Being under water seems to inhibit the dolphin's respiration completely, and in order to breathe and release the

A FALL OF MOONDUST

Arthur C. Clarke
Dell Publishing Co., Inc. 1963
New York, New York

Reprinted by arrangement with
Harcourt, Brace & World, Inc.
New York

If there were any other possibilities he had overlooked. This was not the first occasion he had been forced to pit his wits against this strange and beautiful world, so breath-taking in other moments of magic—so deadly in her times of peril. She would never be wholly tamed, as Earth had been, and perhaps that was just as well. For it was the lure of the untouched wilderness and the faint but ever-present hint of danger that now brought the tourists, as well as the explorers across the gulfs of space. He would prefer to do without the tourists—but they helped to pay his salary.

And now he had better start packing. His whole crew might evaporate, and *Selene* might turn on again quite aware of the panic he had caused. But he did not think this would happen, and his fear deepened to certainty as the minutes passed. He would give her another hour, then he would take the suborbital shuttle to Port Roris and to the realm of his waiting enemy, the Sea of Thint.

When the Priority (Red) signal reached Lagrange, Thomas Lawson, Ph.D. was fast asleep. He resented the interruption, though one needed only two hours' sleep in twenty-four when living under zero gravity. It seemed a little unfair to lose even that. Then he grasped the meaning of the message, and was fully awake. At last it looked as if he would be doing something useful here.

Tom Lawson had never been very happy about this assignment; he had wanted to do scientific research, and the atmosphere aboard Lagrange II was much too distracting. Balanced here between Earth and Moon, astronomical light-drops are made possible by one of the obscure consequences of the law of gravitation, the satellite was an astronomical maid-of-all-work. Ships passing in both directions took their lines from it, and used it as a message center—though there was no truth in the rumor that they stopped to pick up mail. Lagrange was also the relay station for almost all lunar radio traffic, because the whole earthward-facing side of the Moon lay spread beneath it.

The hundred-centimeter telescope had been designed to look at objects billions of times farther away than the Moon, but it was admirably suited for this job. From no

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by C. Clarke

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And now she had better start packing. This whole crisis might evaporate, and *Science* might turn up a gain quite unaware of the panic she had caused. But he did not think that would happen, and his fear deepened to certainty as the minutes passed. He would give her another hour, then he would take the suborbital shuttle to Port Koria and to the realm of his waiting enemy, the Sea of Thirst.

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