

Feature

Science and Technology

Hand Has Begun to Speak — Palmistry Science-wise

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EVERYDAY we see thousands of people. Occasionally we remember their faces, eyes, eyebrows and wrinkles but we never pay attention to human hands — which have their "faces", too. At one time in the past started to study the lines on his hands in an attempt to read his destiny. And thus the mystical practice of chronomancy began. But there are some people who attempt to understand the significance of the complex patterns on the human hand in a rational and scientific way. This science of skin patterns, known as dermatoglyphics, has already lifted the veil from a few secrets.

New discovery in medical science: connection between life line on the palm and longevity

The "Times of India, Bombay, 24th October, 1990" has printed a research result of some British scientists which were published earlier in the "Journal of the Royal Society of Medicine". British medical scientists from Bristol Royal Infirmary under the supervision of professor Doctor PG Neurik has pointed out that it will be easier now to forecast on some diseases thanks to the discovery of connection between the life line on the palm of a human being and his longevity. Surely it will take sometimes before establishing the real nature of relations between this linkup. The British Scientists used the method described by famous legendary palmist "Cheiro". They measured the total length of the life line of dead persons in millimeters and correlated it with every person's total span of life.

After that the results were scrutinized, verified using regression analysis method of statistics. Results showed that there is a strict connection between the lines and ages irrespective of the hand — left or right. The researcher found the ratio of maximum possible length of the life line (theoretical) and the real length of the life line of the subject (practical). This finding the ratio is the key to the problem. It indicates that science is going to be enriched by this discovery which had been told for the last three thousand years by the Indian, Chinese and Chaldean astrologers. Legendary soothsayer Count Leo Hamon or Cheiro (1866-1936) had

predicated correctly the death time of queen Victoria, King Edward-VII, Tsar of Russia, Rasputin and many other nobilities of his time.

In developing countries like Bangladesh where the medical cost for pathological tests for finding out the cause and nature of the disease is very high, this newly discovered formula might play a vital role in solving financial and ethical problems. As far as I know, in our country only one person, professor Hawlader is seriously studying palmistry using scientific methods. Evidently it is not a task for a single man rather it requires many hundreds of scientists mainly medical and statisticians countless efforts of years in gathering data and commensuration of all results to firmly establish any link up between line on palm with the prediction of incoming diseases, illnesses.

Senior research fellow of Minsk Medical Institute (Byelorussia) Mr Sergei Usee and his colleagues had revealed in 1975 after many years of research on palm that lines in the palm are not mere whimsical drawing of nature ("The Dainik Bangla" of 27 February 1975). They have found the indication of hereditary disease or body defect from abolishing thousands of palm lines. World Health Organisation (WHO) has recognised the classification for forecasting hereditary disease of defect discovered by the Soviet scientists. They are maintaining research contact with 80 laboratories of the World. Hand prints are collected and the findings due tallied using computer.

In Soviet medical books published since 1987 it is written that 'the very long heart line (across the whole palm — indicates sterility'. Mind that communists never believe in any supernatural phenomenon (God, predestination or palmistry, astrology). But they have studied these phenomena especially palmistry and interpretation of dreams scientifically. Professor Kasatkin of Leningrad studied dream for fifty years and his famous book "Theory of Dreams" has been published

thrice in the west. His interpretation of dreams are so revealing that it is possible to predict about incoming disease beforehand. If our Bangladesh Medical Association or Health Directorate could give any attention towards the aforesaid discoveries and could establish a department in all the medical college hospitals to study palms and dreams scientifically we would be benefitted very much. Our neighbour India and China have taken this research seriously.

While astronomy is recognised as a science, astrology is called a pseudo-science. Some "Sarkatans", "Shamans" misinterpret the influence of heavenly bodies on the life-styles of human being for their selfish interest earning alms. What secrets are hidden in the distant stars, planets we do not know but we are sure that something is hidden in your palm.

Palmistry Science-wise

The odds are that many of you have had your palm read — if only on one occasion, and may be by one of your acquaintances. You must admit that the less you know the person trying to unravel the mysteries of your palm's lines the more you are amazed if his words confirm what you know about yourself.

We differ in our attitudes to palmistry but nearly always show the two extremes — "for" or "against", "believers" or "non-believers". Once when visiting someone I decided to settle the matter empirically by reading the palm of a total stranger. When, after studying his palm I asked whether there was something the matter with his heart, there was general laughter. You would never have taken the man for a heart patient, for he looked like a boxing or wrestling champion. What was more surprising was his confession that he really had some heart trouble and the doctors had warned him several years before he would not live long unless he led a regulated life and dropped smoking and drinking. His question, "I say, how do you know all this?" came amid total silence. The oppo-

nents of palm reading were possible as confused a delighted as millions of our distant ancestors who were flabbergasted by the art of palmistry.

But who was the first person and when did this interest in palmistry begin? Who started talking about some stamp imprinted on the palm of every person? This is difficult to establish. It is known that finger and palm prints were being scrutinized early in the East. One American museum has a thumb print from a Chinese glue stamp dating from the 3rd century BC. Fingerprints were used in ancient Babylon and Egypt, Assyria and India. In Sanskrit the two different notions — "stamp and fingerprint" have a common word denoting them. The complexity and inimitability of the papillary lines used to intrigue Aristotle, Paracelsus and Newton. Ancient Greek Philosopher Anaxagoras practised chronomancy by telling people's fortune depending on their palms' skin relief. Indeed, as long as papillary lines are unique and can definitively name their owner, it may be possible to use them to learn about a person's physiological and psychological traits, too.

Occasionally we can tell a musician or blacksmith by just glancing at their hands. But these are amateurish observations — so what about science? Are there any scientific theories to explain this phenomenon? Yes, there are, this science is called dermatoglyphy (from the Greek word derma meaning skin and glypho meaning I engrave) and started less than sixty years ago. It was not until 1926 that the dissimilarity of palm lines and palm and fingerprints was recognized as a phenomenon of science and made part of it. One can judge of its applications from the following example: a comparison of the papillary lines of different persons may significantly help in medical diagnosis. Not long ago for instance, several groups of researchers, in the USSR, the US and Japan simultaneously and independently arrived at the exciting

conclusion that heart attacks or ischemia ailments have patients have their finger papillary lines resembling a curl more often than in other people. Indian researchers at the Hyderabad University gastroenterological centre have reported one more regularity when comparing finger and palm prints of ninety duodenal ulcer patients with those of a test group of 64 healthy people: there are definite dactyloscopic signs which serve as markers of a genetic susceptibility to ulcers.

Look at your palm see the clear furrows on it and the fingers between phalanges? They develop in every human prior to his birth and remain practically unchanged during his lifetime. For the specialist they are like topography markers indispensable in studying the skin relief. Look at the host of barely visible skin ridges, these are precisely the papillary lines which are the target of dermatoglyphic research. What are they for? Some scientists believe they help us hold onto various objects. It is an interesting fact, though, that the palm's "ridge skin" is more sensitive than the smooth skin. Quite possibly it is because of the ridges that we have our particularly acute sense of touch. Incidentally, the diversity of palm patterns also reflects the different tactile reactions in various people. This is important in as much as it is a tool for learning in our environment. Significantly, Aristotle attached special importance to the sense of touch, even regarding it as the basis of intellects. It seems that the ridges have a dual function — mechanical and tactile. Researchers have found that among the peoples of Europe, North Africa, the Middle East, Indian Europoids and Americans of European descent finger skin patterns are most often loop like and are seldom shaped like curls.

curly, loops, arches and complex patterns of the palm. Even though such maps and charts still have lots of blank spots, this subject is broadly used, among other sources, in studying the origins of races and individual peoples. The important thing is that among the host of morphological peculiarities the dermatoglyphic ones have clear and incontestable advantages, being the oldest, hereditarily stable and unchanging with age.

What made things worse was that another chronic ailment of the central nervous system hereditary cerebellar ataxia was also common in Yakutia, and both of these had exceptionally similar symptoms. The problem was in differentiating between them, and what filed the bill was that the differences in the palm relief of the patients were so striking as to enable their distinction and the correct treatment could be given.

Today scientists in various countries are examining the palm for signs of schizophrenia, diabetes, epilepsy, hereditary galucoma, colour blindness and many other disabilities. They have found, for instance, that the presence on the palm of a four finger line (an unbroken fold running across the palm down its centre) is often the sign of the serious hereditary disease, Down's Syndrome, which is characterized by retarded physical and psychological development as well as various forms of heart trouble. It was this line that prompted my diagnosis of the heart ailment was in the man whose palm I read in this case I was just lucky, as the diagnosis was a mere coincidence, for the four finger line is not necessarily the sign of a disease. Occasionally people showing it are absolutely healthy. The finding of any signs of disease using palm relief and skin patterns is solely the province of the specialist who uses extensive material, so do not be in a hurry to read your own palm having read this article.

There is still lots of fascinating things we can learn about ourselves and other people by examining the intricacies of our palms. The "nature

encoded" information about the physical and psychological traits of our organism is still a fairly unexplored area, but researchers are well on their way to opening it.

A scientist takes a look at the human hand

If you look at your hand, you will notice deep and distinct creases formed by its continuous bending, and striating from them in all directions countries fine folds. On the pads of your fingers and on your palms you can see other fine lines, or ridges of the skin known as papillary lines.

Why should nature have patterned the human skin so? The sole purpose of these lines is to give the hand grip, and it is true that man has no trouble holding things. The skin of fingers and palms is covered with sensitive nerve endings. And this would suggest that the function of the papillary lines is to guarantee a keen sense of touch — so vital in the process of learning about the surrounding world. These lines shown up on the skin of a human foetus when it is about eighteen weeks old and remain unchanged as long as the individual lives.

Experts have divided papillary patterns into four major types — loop, arch, whorl and complete pattern. Of course, all sorts of intermediate variations are possible too. Extensive research into the dermatoglyphics of different people started almost 100 years ago. What has emerged is that the dissemination of specific patterns amongst peoples of the world has occurred in accordance with certain ethnic and geographic laws. For instance, amongst the Mongoloid groups whorls occur more frequently than amongst the Europeans, while the European peoples show a predominance of loops and arches. But there is a distinct corridor through Europe running from the north to the south in which the proportion of whorls noticeably increases. In Eurasia as a whole the number of whorls increases from the west to the east, reaching its peak in Buryatia and Mongolia.

The first phase of the process is to spray a sterile nutrient solution on a previously washed surface and then to spread a growth medium consisting of calcifying bacteria. These organisms (Bacillus Pseudomonas) emanate from a soil microflora.

The data that has been amassed is helping anthropologists in their study of the origins and geographical distribution of races and peoples, and in identifying kin relationships between them. And it is no wonder that this materials is so useful. After all, skin patterns have existed as long as man himself. Also, they are genetically determined and stable and they do not change with age. Here is a relevant example. Several years ago I studied the finger and palm prints of Ethiopians. The anthropological type of this African people displays features inherent in the European and Negroid races. This has reflected on more than the Ethiopians' external appearance. Dermatoglyphic data has also confirmed that they occupy an intermediate position between two races — their finger patterns ally them with the southern Europeans, while their palm prints bear witness to their African blood.

It is clear that the patterns of the human palms are not a senseless caprice of nature. Scientists have concluded that they are the mirrored signals of genes. Possibly, these signs will help unlock the secrets of hereditary disease. And for this reason geneticists and medical people have started to take an interest in dermatoglyphics.

These studies have now been validated on a wall of the Chateau de Champs-sur-Marne, in cooperation with the Historic Monument Research Laboratory.

Forensic medicine successfully employs dermatoglyphic technique in establishing parent-child relationships. For example, a mother and daughter may become separated by war. The Hungarian scientist Sandor Okres has compiled a most valuable table for use in such cases. In it he gives 95 types of papillary design. Studying many cases where there was no doubt about paternity, he came to the conclusion that every finger of a child inherits minute details of the skin design of the respective fingers of his parents. Okres's method has proved itself in 1,600 doubtful cases. — (Courtesy: Sputnik, Asia, Africa Today.)

COMPUTER

There are three types of computers — Digital, Analog and Hybrid. Digital computer is one which can calculate to find an output. Analog computer is that type of computer which can measure to find output. Hybrid computer is the combination of analog and digital computer. It can solve problems which cannot be solved by the above two types of computers.

Hardware: Hardware is a group of physical items or equipment that can be seen and touched. Terminal, keyboard, disk-drives, line printers, shared storage unit, buffer etc. are the examples of hardware. Depending on the design and purpose, hardware performs some function and functions arranged and combined to meet human objectives.

Software: It is specific program by which the computer can be operated. For solving problems, some instructions i.e. programs are permanently stored into the computer, these types of instructions are called software.

Magnetic Disk: There are two types of magnetic disk. The floppy disk and the hard disk. Floppy disks are commonly known as diskettes which can store 256 Kilo to 1 Mega bytes. A hard disk can typically store 5 Mega to 300 Megabytes. Diskettes and the drives on which they are mounted and relatively cheaper than the hard disks and their drives. But the diskettes generally are rotated at low speeds than hard disks, also their data transfer rate is much lower than that of hard disks. Data transfer rate is defined as the number of bytes that can be transferred between the disk and the central processor unit (CPU) or the primary memory.

Programmers: The man who does all the works of programming is called a Programmer.

Program: Program is a set of instructions that guides the computer through a process. This is telling the machine what to do, how to do and where to find the data to be acted during the execution. The process of preparing the program is called programming.

The programs are written in high level languages like the FORTRAN, ALGOL, COBOL, PL-1, BASIC, RPG, Pascal C-Language, Logo, Ada, LOTUS etc.

IBM: International Business Machines Corp. In the early 1900's Hollerith's firm became the IBM Corporation. IBM had introduced calculating ma-

Computer Tidbits

by R. N. Sanyal

chine back in the 1930's, but not commercially until the beginning of the Korean war. IBM is an established firm in the computer world.

abacus: An ancient device used for simple calculations that use movable beads threaded on a grid of wires. abacus is still in very much use in China.

ASCII: American Standard Code for Information Interchange is a seven-bit code for the interchange of data. Seven bit with a parity bit. The number of valid combinations are 27 or 128 characters.

BASIC: This is a computer language. These means Beginner's All-purpose Symbolic Instruction Code. It is a very simple programming language developed at Dartmouth College in 1965 and widely used on home computers. Binary Number System: Bimans two. A numbering system made up with character '0' and '1'. '0' logic 'off', '1' logic 'on'. For example, '101' in binary equal to '5' in decimal. Also '111' in binary is equal to '15' in decimal etc. Bit: BIT is an abbreviation of Binary digit. Binary numbers are represented by two states: ON and OFF, i.e. '1' and '0'. In the EBCDIC code of the letter A (1100001) each of the Os and 1s can be referred to as a binary digit. In ASCII code A (1100001). Here each of '1' and '0' become a bit.

Byte: A combination of bit which represents a character is called a byte.

ADA: A special type of computer program named after Lady Ada Lovelace, who worked with Charles Babbage on Analytical Engine. In 1970, under the direction of the US Department of Defence (DOD), this language was designed to communicate or pass data among the Army, Navy, Air Force and Marines. This language is very similar as that of Pascal. There are types of program modules in Ada: (a) Subprograms and (b) Modules. Subprograms become procedure and functions. Modules are divided into package and task.

COBOL: An acronym for Common Business Oriented Language, this is a very high-level computer language. In the year 1958 on 28th and 29th May, a conference organised by US Department of Defence felt that there was a

need for high-level programming language, which should be suitable for business data processing. This conference was attended by civil and governmental organization representatives and three groups were formed for actual design of the language — one short-term, one middle-term and another for long-term work. In September 1959, the first group submitted a report to the directorate. In the same year the directorate held a meeting and it was in this meeting that the new language was named COBOL. Different versions were later produced in the market at different times. In best of my knowledge the last version was in 1978 which is very popular nowadays.

PRINTER: The line printer is an output device of computer, which can print by a single operation. Depending on the line printer, a line may consist of 100, 120 or 132 print positions, or it may be used as a special purpose then the line may vary. The output medium for a printer is a continuous slip of paper (usually, fanfold form) which is fed through the device. The size of a page can vary, but generally, the dimensions are 30.5cm in length and 25.4cm in width. The printer is basically of two kinds: impact and non-impact. Chain printer, drum printer, matrix line printer, daisy wheel printer, dot-matrix printer are examples of impact printer and electrostatic printer, electro thermal printer, laser printer, Xerographic process, ink jet process are the examples of non-impact printers. Speed, in early days produced 50 lines per minute (LPM), nowadays up to 3,000 LPM on impact printer and more than 20,000 LPM with the non impact printers are produced.

Chip: Chip is a small integrated circuit consisting of a crystal chip of silicon. The main benefits of a chip a high reliability, size reduction, and low cost of the computer as compared with the use of discrete components interconnected by conventional techniques. In a chip many transistors, diodes and resistors can be introduced.

MICROWAVE: If the frequency range between 0.3 to 300 GHz (Giga Hertz), then the frequencies are called mi-

crowave frequency. Mention may be made here that 1 GHz=1000 MHz=1X10⁹ Hz. Wave length are very short, a fraction of one metre. Advantage of microwave transmission is that parabolic reflector dish antennas can be used to provide very high gain with a very narrow beam. In line-of-sight transmission there is no physical obstacles in the path between transmitter and receiver. Microwave link is used as an alternative of twisted pair and coaxial cable. The antennas are always fixed at a substantial height from the ground level. Mostly used in long-haul telecommunications service, satellite communications.

OPTICAL FIBER: The optical fiber is made of various glasses and plastics. This is a very thin — 50 to 100 micrometer flexible medium capable of conducting on optical ray. This fiber is used as a replacement of twisted pair and coaxial cable. The facilities of optical fiber are greater band width, smaller size and higher weight, lower attenuation, electromagnetic isolation, greater repeater spacing. Mostly used in data transmission, long-distance telecommunication, military applications, local area network and short-haul video distribution.

SOLAR Cell: The emission of electrons from matter under the influence of light is known as the photoelectric effect. This experiment was first observed by Hertz in 1887. A reverse-biased P-N junction, which produced reverse saturation current flows due to thermally generated holes and electrons, which constitute minority solar cell or solar energy converter is just a larger photo-diode designed to operate solely as a photo-voltaic device.

Solar energy is the best option of all other energies, because, one day all fossil fuel will come to zero. Again from power stations dust, fumes and acid gases and huge amount of carbon dioxide are escaping. Another option can be used i.e. nuclear-energy, but because of the interactive problems of weapons proliferation and nuclear accidents and waste disposal, solar energy is considered best among all other energies.

Process for Cheaper, Stronger Rayon

A new chemical process that makes a strong, silk-like fibre from sources as varied as corn and wheat stalks, straw and wood pulp can also be used to make a tough new rayon, according to a chemical engineer in the United States, reports Chemical Engineering Progress.

At the heart of this process to make fiber from low-grade cellulose is zinc chloride, says Dr. Li Fu Chen. "For the first time, we can make fibre from almost any source of cellulose, even from office waste paper," the journal has quoted him as saying.

Cellulose is a chain of sugar molecules that makes up products such as wood and paper. Rayon is formed by separating out the chains and forming them into fibres.

Before Chen's process was developed, rayon could be made from high-quality cellulose with very long chains. In addition to cloth, rayon is used in cords and industrial products.

Although the method of using zinc chloride to extract fibre from cellulose was discovered more than a century ago, the fibres produced were not strong enough to use. According to Chen, his process produces a fibre that is several times stronger than present day rayon.

He says his process has several advantages over standard ways of producing fiber from cellulose. It can use cellulose from any source. Currently only high quality wood pulp can be used to make rayon.

The new process is much faster and cheaper than methods now used. It allows almost instantaneous production of fiber compared with current methods that can take up to 18 hours. Because the process can use almost any pulp source, the raw materials are much cheaper.

material, known for its strength and light-weight, currently is used to make products as diverse as plane parts to tennis rackets.

Process Promises to Ease Sludge Disposal

A process that reduces the volume of toxic petroleum wastes by 85 per cent or more while recovering valuable oil has been developed and patented by researchers at Battelle's Pacific North-west Laboratories in the United States, reports Chemical Engineering Progress.

Battelle's petroleum sludge treatment process (PST) involves heating the sludge under high pressure. The emulsion breaks apart at relatively low temperatures of 350 degrees F and separates the sludge into three distinct layers of oil, water and solids.

The separation occurs rapidly within a single vessel. The oil and water then can be recycled, leaving only the solids for disposal. The solids remain toxic because of the chromium and lead content, but the amount that must be treated and contained can be reduced by 85 per cent to 95 per cent, according to laboratory test results.

With the PST system, Battelle estimates that disposal costs can be cut to just one-fifth to one-tenth the cost of traditional methods. In fact, the process might be able to pay for itself because between 10 per cent and 40 per cent of the sludge is oil that can be recovered and returned to the refinery, the journal said.

The separation process was discovered when researchers added heat and pressure to petroleum sludge hopes of producing methane gas. This method did not produce gas, but scientists noticed that the sludge had separated into three separate layers.

Battelle has completed bench scale tests on petroleum industry sludge samples in an autoclave and this work resulted in the patent issued last November. The scientists now hope to build a demonstration plant. The journal has quoted a Battelle spokesman as saying that the process also shows promise for oil spill cleanup and treatment and reducing wastes from oil production operations.

Fungi Help Recover Metal From Contaminated Water
French scientists have developed a new technique that

uses filamentous fungi biomass to recover heavy metals from water, according to a report in French Technology Survey.

Some filamentous fungi have the property of trapping metallic cations in an aqueous solution even in the form of dead biomass — a consequence of their special wall composition.

Many fermentation industries producing organic acids, antibiotics or enzymes from the culture of filamentous fungi reject mycelium sludge which are difficult to process and for which no attractive use has been found yet.

Now research conducted at the molecular and structural biology department of the French atomic energy commission employed the mould rhipus arrizus (mucorale) in which the cell walls contain many anionic sites such as amines, carboxyl and hydroxyl

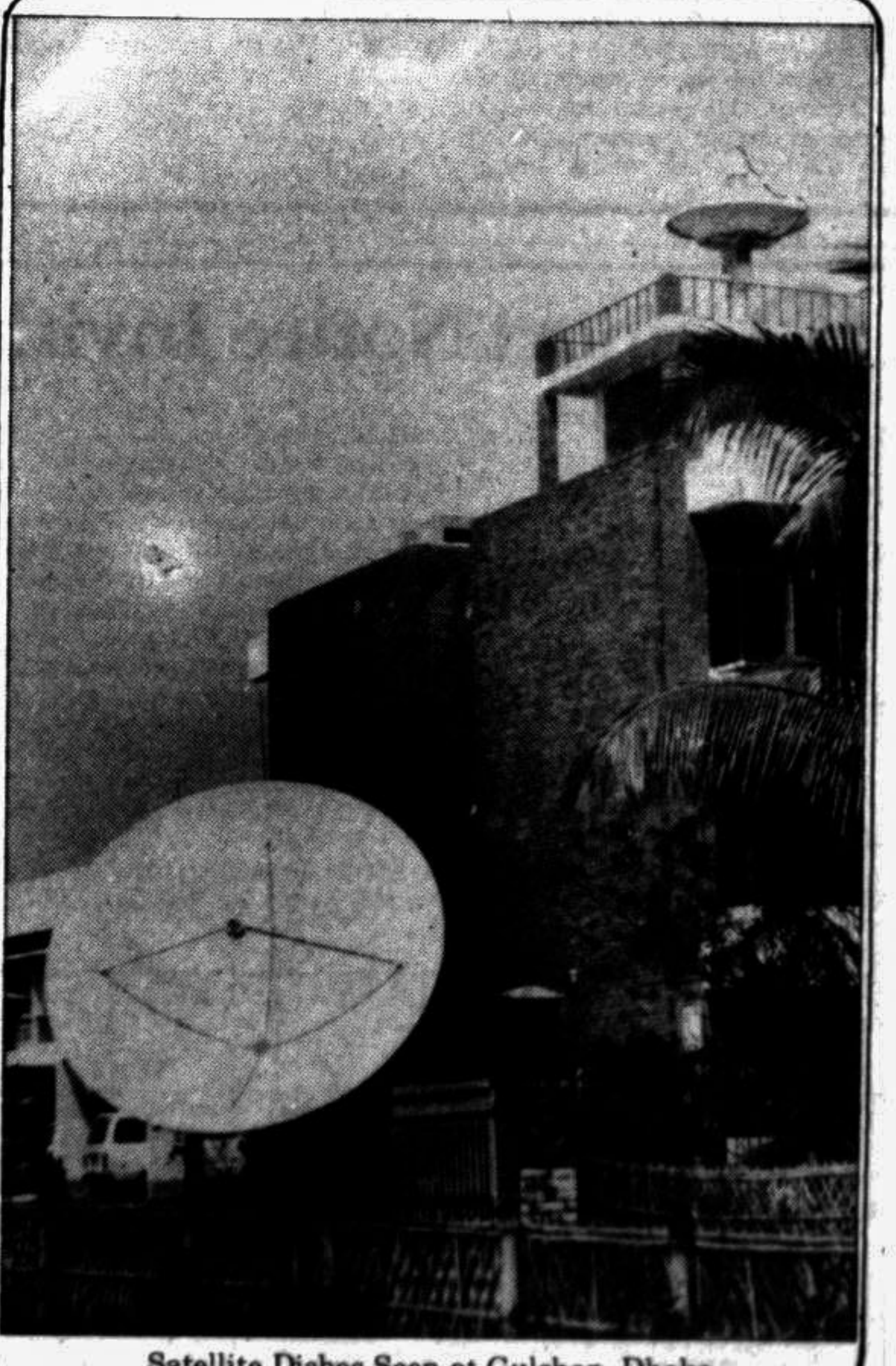
groups particularly phosphates.

The biomass of rhipus arrizus can adsorb between 30 and 130 mg of cadmium per gram of dry matter, depending on the treatment applied and the acidity, the report said. The report said just 1.5 kg of mycelium powder could be used to recover metals from one tonne of water loaded with five grams of cadmium.

Microbes Might Help Protect Buildings

Scientists in France have shown that certain microorganisms might find use in the protection of buildings, according to a report in French Technology Survey.

Research at the geomicrobiology laboratory at the University of Paris led to the production of chalky substances by growing bacteria extracted from natural growths in suitable nutrient media.



Satellite Dishes Seen at Gulshan, Dhaka.