

LIFE IN THE DIAMOND.

Professor Von Schroen Finds Crystals Develop Like Living Matter.

There is life in the diamond. That is the discovery announced by Professor Von Schroen, of the University of Naples, one of the greatest institutions of learning in Italy.

The diamond, which has always been regarded as the most lifeless of substances, throbs with animation like the body of a human being. Its crystallizations are the evidence of a vital process even as are the wonderful internal workings of animals and plants.

This discovery applies not to diamonds alone. Professor Von Schroen has observed the phenomena of life in various other crystals. But his discovery, as far as it relates to crystals, is only a limited application of a great law of nature. Things have hitherto been divided into organic and inorganic classes. Such a division will no longer be applicable. The so-called inorganic things are alive as fully as the organic. In short, a diamond and a man are equally alive. Herbert Spencer, the great English philosopher, has accepted the theory.

Professor Hermann Eduard von Holst, who holds the Chair of History in the University of Chicago, has brought the announcement of Professor Von Schroen's discovery to America.

Last September Professor Von Holst went to Naples. There to regain his health he went to certain physicians for treatment. Among them was Dr. Von Schroen, who soon became a fast friend of the patient. He talked to Professor Von Holst of his scientific work and explained to him by practical experiments and microscopical investigation the theory of life in inorganic matter.

It was a fascinating revelation to the Chicago Professor and he at once grew enthusiastic over the discovery. He says that Professor Von Schroen by the use of powerful microscopes was enabled to observe what he had suspected for over ten years, namely, that crystals were pervaded with life.

This discovery came like a revelation to Von Schroen, who continued to observe and record what he saw under the glass. Then he brought photography to his aid and recorded with the camera the manifestations of life he saw in the crystals. He selected fourteen different crystals, and by the double aid of camera and lens recorded the visible proof of his theory. He photographed the same crystals at different times during the same day, the same month and the same year.

The views show the crystal in its birth, the head showing forth from the mother crystal, and the course is followed as it pushed out and away. Then, in the language of Dr. Von Holst: "The crystal meets another one from a different mother. The two strike at each other, they fight, strive and clash with each other. It is war to the death. It is a case of the survival of the fittest. One must die. No two crystals from the same mother ever fight, however, no matter where they meet."

All this, the life development and the contention, is set forth in the views, so all can be convinced who see them.

Professor Von Holst returned to Chicago with regained health this week. In class he incidentally mentioned Dr. Schroen's discovery. The class gave out the secret and the professor has been besieged by newspaper men and scientists to reveal all he knows. He refuses to talk on the subject save in a fragmentary way. He says he is not a scientist, but a layman, and that it is impossible for him to explain in an off-hand way the whole theory. He fears that any inaccuracy of statement would place Dr. Von Schroen at a disadvantage in the scientific world. He says, however, that he will write what he knows of the discovery as soon as his health will permit and give it to the press and world. As yet he is unauthorised to do so.

Dr. Von Schroen is a Bavarian by birth and is now about sixty years of age. He has spent his entire fortune in working out his new theory. It requires money to follow it up and to present it in all of its many and intricate phases to the scientific world, and Professor Von Holst hopes that some wealthy benefactor of science will come to the surface and perpetuate his name by giving \$500,000 to the work.

Professor Von Schroen has accumulated hundreds of photographs from as many different inorganic objects. Some of the views of the crystals show generation. One can see, according to Professor Von Holst, the minute embryonic heads peering out from their mother crystals. Their evolution is then accurately followed up from week to week, each species possessing an affinity for its kind, but clash with crystals of others not akin. It is Darwin's principle of the survival of the fittest applied to inorganic matter. In the war the weaker go down, the stronger continue to exist. The life, the development, and the struggle of the crystalline life are exhibited in the photographs.

Professor Von Holst thinks the sum of \$500,000 is none too much for the work to be done. It is expensive and laborious to keep out these microscopic views. Thousands must be made for distribution all over the world.

"I saw the wave and rhythmic motion in these crystals," he said to the Journal correspondent.

"They throbbed with life as they passed before my eye, looking through those powerful magnifying glasses. The atoms, infinitesimal in size, move about in confused activity and force in those inorganic crystals. This truth is no theory, it is a scientific fact that will startle the world when presented by its discoverer.

"Dr. Von Schroen told me that Austria, Germany and Italy had offered to assist him, but he was inclined to allow the Italian Government and the United States Government, which is a great patron of science and its development, to take part also. Nothing definite, however, has been decided upon as to this matter."

GEMS Now Found to Be Inhabited by Living Organisms.

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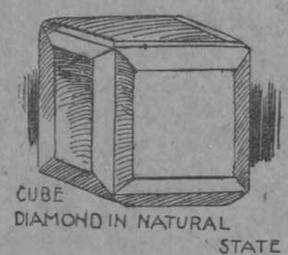
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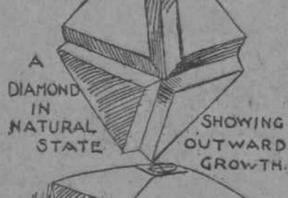
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CUBE DIAMOND IN NATURAL STATE



A DIAMOND-NATURAL STATE SHOWING OUTWARD GROWTH



A DIAMOND IN NATURAL STATE SHOWING OUTWARD GROWTH



A DIAMOND AS FOUND



A MOTHER CRYSTAL



A YOUNG CRYSTAL GROWING



THE BIRTH OF TWO CRYSTALS



A FAMILY OF COBALT CRYSTALS



THE OUTWARD GROWTH OF CRYSTALS

ABOVE THE CLOUDS BY BALLOON.

The Highest Point Yet Reached by Man in the History of Aerial Exploration.

Man has been doing some wonderful climbing of late. He has made up his mind to see how far away he can get from the surface of the earth—in other words, to find out how far he is able to ascend toward the sky. It is a most interesting and even exciting task, and not the less so because of the great dangers attending it. There is no telling what may be accomplished in this direction in the future.

All human beings, like deep sea fishes, dwell on the floor of an ocean. The ocean in question, instead of being made of water, is a mixture of gases. It is called the atmosphere, and the people on the earth crawl about on the bottom of it.

Lately people have become anxious to know something about this ocean—how deep it is, and what it is like as to temperature, density, etc., in the upper levels. It is much as if the abyssal fishes aforesaid should want to obtain similar facts respecting the sea. Supposing that any of them should attempt a voyage of discovery upward, the consequences would be disastrous. In ascending, they would soon begin to feel discomfort by reason of the diminishing density of the water, and, if they kept on, they would reach the surface in a dying condition.

It is just the same way with human beings who ascend toward the upper levels of the atmospheric ocean by climbing mountains or in balloons. The rarefaction of the fluid that surrounds them first makes them sick, and at the height of half a dozen miles or so they die. Consequently a journey of any length skyward is considered among the most perilous enterprises that can be undertaken by man, and up to date, only a very few individuals have reached four miles above sea level.

Nevertheless, inquisitive man has made up his mind to pursue this inquiry, and at present he is adopting quite a variety of expedients for the exploration of the upper air. Among these are various forms of apparatus, such as kites and free balloons carrying automatic recording instruments. Meanwhile observing stations are being established on the highest mountains, and where the elevations are too great to permit continued residence by human beings self-recording contrivances make note from hour to hour of the temperature, percentage of moisture in the air, and direction and velocity of wind currents.

The highest reach thus far made by man into the empyrean was accomplished not long ago by a small free balloon called the Cirrus, sent up from the city of Berlin. It bore no human freight, but all the same it carried a brain of its own in the shape of a self-recording barometer and thermometer. The height attained by it, as shown subsequently by the barometer, was 11 1/2 miles, and the temperature at that elevation, as registered by the thermometer, was 75 degrees below the zero of Fahrenheit. At a date some months earlier a Frenchman named Hermite sent a free balloon called the Aerophile, with instruments, to a height of ten miles.

There are few things that man will not dare, and many adventurous persons have boldly penetrated into that upper region of the atmosphere where no human being can live for any length of time. Within the last few years three expeditions have attained an elevation of nearly 5 1/2 miles in balloons—a level close to that of the loftiest clouds, which are supposed to be composed of snow flakes or ice crystals. In 1862 the English aeronauts Corwell and Glaisher reached 29,000 feet, when they became unconscious, surviving only by a miracle. This feat was nearly equaled by three Frenchmen—Croce-Spinelli, Sivel and Tissandier—in 1872, when the two former died for lack of air, though a supply of oxygen was carried along.

But the most remarkable ascent on record was that of Dr. Berson, in 1893, who attained an elevation of nearly six miles, where he found the temperature 54 degrees below zero. He suffered very little, thanks to frequent inhalations of oxygen. This is the highest point reached by man up to date.

Balloons often rise with great rapidity. Glaisher ascended five miles—thereby reducing the atmospheric pressure to one-third of the normal—in fifty minutes. Professor H. A. Hazen, of the United States Weather Bureau, has risen a mile in five minutes. The Weather Bureau is now using huge cellular kites to carry up self-recording thermometers and other instruments. They can be put up to a height of 1,000 feet in five minutes.

The highest elevation ever attained by a kite was reached by one down October 8 of last year from the Blue Hill Observatory, near Boston, of which A. Lawrence Rotch is director. It floated at a level of 8,740 feet above the hill, or about 1 1/2 miles above sea level.

A Comparative Map, Showing the Different Attempts to Reach Heaven.



A. Fitzgerald, a famous mountain climber, has conquered Mount Aconcagua, 22,422 feet high, which was formerly in Chile, but now is in Argentina. This does not mean that the mountain has moved, but merely that the boundary between Argentina and Chile has been altered. Aconcagua has been supposed to be the highest peak in the Western world, but some authorities allege that Illimani and Illimani, which uplift their snowy crests from the plateau of Titicaca, are the true monarchs of the Andes, reckoning the height of the former at from 21,000 to 25,000 feet, and the latter at only slightly less.

A limit to the possibilities of mountain climbing is set by the rarefaction of the atmosphere. When the air is too thin to support life, the hardest mountaineer must stop. For this reason it is altogether probable that some of the very loftiest peaks in the world will remain virgin and untroubled by human foot to the end of time. For example, Mount Everest, queen of the Himalayas, is 29,000 feet, or a little more than five and a half miles in height. It is much more than a mile higher than Pioneer Peak. Second among the mountains of the world comes the Dhawalagiri, also in the Himalayan system, which is set down in the geographies at 28,000 feet. These two, at all events, are likely to defy ascent; the mountains already mentioned come next after them in altitude.

All things considered, it is wonderful how much has been accomplished by man in the conquest of lofty altitudes. In 1890 M. Vallot, a devoted Alpine climber and meteorologist, established a station on Mont Blanc at an elevation of 14,320 feet, provided with self-recording instruments that operated for two weeks without attention, being looked after by the owner or his guides every few days during the summer. Sunk in the snow on the very summit of Mont Blanc, 14,000 feet high, a station has been newly built which will be equipped with instruments automatically registering during a period of three months.

In 1893 Professor Bailey succeeded in placing self-recording instruments on the summit of the volcano El Misti, 19,300 feet high, in Peru. Several times a month an observer climbs the mountain in order to wind the clockwork and change the register sheets. Of course, it is impossible for human beings to remain in such places. The highest permanently occupied observatory in Europe is on the Sonnbleck, a peak of the Austrian Alps 10,170 feet high.

It is wonderful that what elevations people in various parts of the world are able to live and do live. The highest inhabited place on earth is the convent of Hanle, in Tibet, 15,500 feet higher than the sea level. Next comes the village of San Vincente, in the Bolivian Andes, at 15,000 feet. It is unquestionably a fact that dwellers at such altitudes are physically weak, the atmospheric density being only about one-half of the normal and the supply of oxygen insufficient.

The government meteorological station on Pike's Peak, in Colorado, was for fifteen years the highest in the world, 14,134 feet. It has been closed, owing to the cost and difficulty of maintaining it.

In the upper atmosphere the temperature changes scarcely at all from night to day or from winter to summer. At an elevation of only six miles, where the feathery "mare's-tail" clouds float, it is eternal winter, and the wind up there often blows at the rate of 200 miles an hour. The free balloon Cirrus, had to be provided with an alcohol thermometer that would record by photography, because ink in an ordinary registering pen would have frozen.

Nobody knows just how thick the air envelope of the earth is, but the most reliable computations place its height at from forty-five to one hundred miles. When meteors enter it from outer space, they are promptly set on fire by friction, being thus transformed into what are popularly known as "shooting stars." Now the elevation of such shooting stars is often as great as sixty miles, and this is one of the most important data on which reckonings in this matter are based. On the other hand, it is reasonably to be supposed that the atmosphere thins off gradually for perhaps hundreds of miles further into the void of space. The Cirrus observations proved that the density of the air at a height of ten miles is only one-ninth of what it is on the surface of the globe.

Aeronauts and mountain climbers used to collect samples of air at high altitudes for analysis, but it is now known that the composition of the atmosphere is the same at all levels, except for the admixture of certain impurities, such as carbonic acid gas and watery vapor. Furthermore, the fact is established that the density is halved for each three miles of ascent. It has been ascertained also that in going upward the temperature diminishes at the rate of about 1 1/2 degrees Fahrenheit per mile. At an elevation of twenty-five miles it is probably over 200 degrees below zero. Go twenty-five miles higher yet, and the temperature cannot be far from the absolute zero of space.

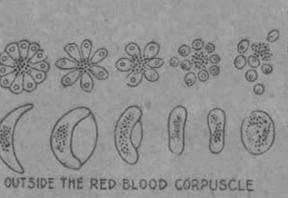
GERMS of All the Common Diseases of Man Rounded Up.

A CONGRESS OF MICROBES. Chicago Doctors Give an Exhibition of the Germs of Deadly Diseases.

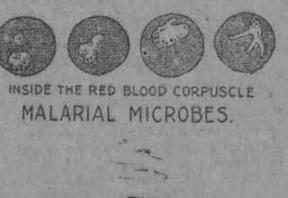
A most interesting and varied collection of microbes met at the Tremont House, Chicago, on May 12. The meeting was held under the auspices of the Illinois Homeopathic Society and the Illinois Microscopical Society. Chicago may now say with just pride that it can produce more microbes and more different varieties of them than any city in the world.



ASIATIC CHOLERA MICROBES. MAGNIFIED 1500 TIMES.



INSIDE THE RED BLOOD CORPUSCLE MALARIAL MICROBES.



TYPICAL TYPHOID FEVER MICROBES. MAGNIFIED 1200 TIMES.



DIPHTHERIA MICROBES. MAGNIFIED 1200 TIMES.



INFECTION OF LIVE CELL WITH MALIGNANT CARBUNCLE (BACILLUS OF ANTHRAX) SHOWING DESTRUCTION OF CELL.

The germs of all the common diseases were exhibited, and also those of some rare ones. Every specimen was placed under a microscope so that it could be studied freely. One of the conditions imposed upon persons sending in exhibits was that each should furnish a microscope. There were, consequently, some two hundred of these instruments furnished.

The exhibition was held, most appropriately, in the dining room of the hotel. The public was admitted freely. During the day the proceedings were of a scientific character, but in the evening the affair assumed a social and convivial aspect. The young men and maidens of Chicago wandered round the room and gazed with naive interest upon the curious creatures among whom they pass their lives without being able, under ordinary circumstances, to perceive them.

There were enclosed in frail glass cases colonies of microbes capable of spreading death among countless thousands. But there was no danger from them, for they were in the hands of their tamers, so to speak, and could only wriggle in impotent fury.

It was a weird and somewhat awful spectacle. The original causes of the most horrible forms of death were placed before the eyes in an exaggerated form. They were green, red, yellow, purple and every other possible and impossible color. In their forms and combinations they rivaled the variety of the kaleidoscope.

Each doctor taking part in the exhibition showed life specimens of typhoid bacilli under the microscope. Some of the other exhibits were:

T. A. Geismann, M. D., city bacteriologist, live specimens of diphtheria bacilli.

W. H. Knapp, M. D., bacilli of a disease prevalent in India, which cripples the feet. Dr. Devos, United States Government Inspector at the Union Stock Yards, bacilli of trichinosis.

W. C. Wise, D. D. S., bacilli of tooth troubles. B. F. Quimby, the poison of the honey bee.

One of the most curious exhibits was that of Dr. Knapp, who showed the bacilli of the so-called Madura foot disease, which afflicts the natives of India. It commonly results in the loss of the feet. Only two cases of this disease, so far as is known, have occurred in the Western Hemisphere. Chicago had one and Canada the other.

The bacilli cause a fungus growth in the blood. They are of irregular and club shape. Tuberculosis occupied a large amount of attention. The germs were shown in every stage of development and were compared with the bacteria ordinarily found in healthy sputa. The bacilli of tuberculosis, which is very active in Chicago, appear when stained to be a long, thin thing, with four or five white bands running around it. It has a very distinctive appearance.

A large and interesting variety of plasmodia, the organisms which cause malarial fevers, was shown. These are divided into two classes, extra-corporeal and intra-corporeal, those without and those within the blood cells. The first are described as fine granular masses of protoplasm, which assume flower-like shapes, with a rosette pigment in the centre. At the end of a paroxysm of fever they fall to pieces and the pigment is set free. The second are oval bodies, nearly the size of a red corpuscle, with motile flagella. The organisms were very interesting to watch.

Dr. Wise's dental exhibition was very instructive. It explained the growth of the tooth from the beginning up to the stage when it is attacked by the microbes of decay, thereby causing a pain which no man has yet known how to endure patiently.

Typhoid fever, that disease which is one of the pressing problems of all American cities, was exhaustively treated. The typhoid bacillus is long and slender, narrowing at several places, as if it were built in sections.

The bacillus of Asiatic cholera, which fortunately is not chronic in this country, was an exhibition magnified by 1,500 diameters. It is a sausage-shaped creature, not very remarkable in appearance.

The most exciting feature of the whole show was a series of fights between the bacilli of anthrax and the leucocytes. The latter are the white corpuscles of the blood and it is their duty to resist the invasion of bacilli. In some cases the leucocytes are successful and in other the bacilli.

Reveal cultures of the microbes of diphtheria were on view. These were placed in close proximity to cultures of false diphtheria microbes. This arrangement was very interesting and instructive. In various forms of sore throat there are often present microbes which bear a close resemblance to those of true diphtheria. These organisms may change suddenly into those of the dreaded disease by a process which is not yet fully understood.

The antics of the streptococci excited much interest in the company. These are microbes of many and often unidentified forms, which join together in long strings and go through complicated manoeuvres. Any entertainment which may be afforded by their appearance must, however, be diminished by the knowledge that they are usually present in deadly diseases.

In addition to the microbes the Chicago doctors had on view a large number of specimens of tissue in various pathological conditions.