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# SCIENCE FICTION *Quarterly*

May,  
1952

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*Cover by Milton Luros, suggested by "The Shining City"  
Interior illustrations by Luros and Poulton*

ROBERT W. LOWNDES, Editor

SCIENCE FICTION, QUARTERLY, May, 1952, published February, May, August, and November, by COLUMBIA PUBLICATIONS, Inc., 1 Appleton Street, Holyoke Mass. Editorial and executive offices at 161 Church Street, New York 14, New York. Entered as second class matter at the Post Office at Holyoke, Mass., under the Act of March 3, 1979. Single copy 25c yearly subscription \$1.00. Entire contents copyright 1952 by COLUMBIA PUBLICATIONS, Inc. Manuscripts must be accompanied by self-addressed envelopes to insure return if not accepted, and while reasonable care will be exercised in handling them, it is understood that they are submitted at author's risk. Printed in U. S. A.

# THE BLACK MAGIC OF YESTERDAY

By Eugene W. Nelson

**More on the "wisdom of the ancients." . . . But it seems as if the old boys did have a bit of perfectly tangible, non-supernatural "wisdom" at that!**

**I**T HAS been said, *The black magic of yesterday is the simple science of today.*

Nowhere in history is this more truly seen than in the methods worked out by kings and priests of pre-Christian times to mystify and awe the great masses of common people, thereby increasing the prestige, power, and authority of these priests and kings.

Such men possessed a very fair working knowledge of various sciences: acoustics, hydrostatics, mechanics, optics, and chemistry, judging by the imposing array of stunts and stage and sound effects which priests accumulated during the centuries. In fact, almost every branch of the basic sciences seems to have contributed its share to the wonders of the ancient magician's budget.



*Sekhmet had a woman's body and a cat's head...*

This system of imposture was greatly aided by general ignorance concerning the fundamentals of science in those early days. When knowledge is the property of a comparatively small group of men, it is, by no means difficult to employ it for the subjugation of people. Thus, an acquaintance with the motions of the sun, moon, plan-

ets, and stars would enable its possessor to predict astronomical occurrences with a frequency and an accuracy which would not fail to lend an aura of divinity to the prophet. Again, the power to "bring down fire from heaven"—as well as the ability to render the body insensible to fire—could be regarded by the populace as nothing else but gifts from the gods.

The secret use which was thus made of simple scientific discoveries, and of mechanical contrivances, no doubt delayed the progress of science immeasurably. It has also made it difficult for modern scholars to obtain a comprehensive picture of the actual attainments of the ancients in the various fields of science. However, sufficient evidence has been collected to show us that almost every one of the basic sciences was known and used.

The science of acoustics seems to have furnished priests and kings with some of their best and most startling deceptions. The golden virgins, whose ravishing voices resounded through the temple of Delphos; the stone near the river Pactolus, whose reverberating trumpet notes frightened away robbers from the treasure it guarded; the speaking heads which uttered oracular responses at Lesbos—all these were deceptions derived from an application of the fundamentals of acoustics.

For instance, in the labyrinth of Egypt—which contained 12 palaces and 1500 subterranean apartments—the gods were said to "speak in a voice of thunder". Pliny, during whose lifetime this singular structure existed, tells us that some of the palaces of the labyrinth were so constructed that whenever the doors were opened, peals of thunder were heard from the interior. Unfortunately, we have no indication of how this particular sound-effect was produced, although it is quite possible that—in the subterranean and vaulted apartments of the Egyptian labyrinth—the reverbera-

tions arising from the mere opening and shutting of the doors themselves gave a passable imitation of thunder.

Again, when Darius Hystaspes ascended the throne of Persia, and allowed his subjects to prostrate themselves before him as a god, the divinity of his character was impressed upon his worshippers by bursts of thunder and flashes of lightning. Here, again, no definite information has been discovered to tell us how the demonstration was staged. Some scholars, however, have suggested that—in this instance—the thunder may have been produced by rattling or striking a thin sheet of metal—a procedure which was used for years in the theater and also in the early days of radio. The lightning could have been produced by priests throwing powdered rosin, or lycopodium dust, through a flame.

**T**HE PRINCIPAL pieces of acoustic mechanisms used by the ancients, however, were the statues of the gods which spoke. One device for making the gods "speak" and deliver their commands personally was discovered in Syria, shortly before the outbreak of World War I, by British archaeologists. In a temple at Tell Barak, they found a secret chamber behind the altar of the local god. In this chamber, so placed that a priest could use it conveniently, was a mouthpiece. A speaking tube connected this mouthpiece (the grandfather of our modern microphone) with an opening in the altar directly in front of the statue of the god.

The worshipper, after asking a question or a favor of the god, was thunder-struck to hear a hollow, mysterious voice answering his question. It probably never occurred to the frightened man to doubt but that the god was speaking to him, personally.

In Pompeii, too, a secret stairway has been uncovered, from which pipes led into the back of the head of a

huge statue of Isis. It was through these pipes that the priests uttered their oracles and issued commands which—coming from such a popular goddess—probably carried far more weight than they would have, had they been issued by the priests in person.

Again, in 1864, a great statue of Hercules Magnus was uncovered in Rome. A hole, about a foot in diameter, was found in the nape of the statue's neck, through which an active child could slip into the Colossus. In the presence of several leading archaeologists of that period, a child was actually placed inside the statue and was asked several questions by the men outside. It is reported that "there was a solemn, almost supernatural intonation about the voice of the child" when he answered the questions.

That some of the early Christians were fully aware of this method of deception, and were not afraid to expose it to the people, is suggested by a passage in the "Ecclesiastical History" which Theodoretus wrote about the year 430 A.D. Theodoretus relates that Theophilus, Bishop of Alexandria, broke the statues of the gods in that city to pieces. Then Theophilus showed the city's inhabitants that some of the statues were hollow and so placed against the walls that the priests could creep into the statues and deliver their prophecies and oracles. The "History" goes on to tell that the temples were ordered torn down and pagan priests were chased from their hiding places in the hollow idols.

In addition to this "direct-action" method of making the gods deliver their judgments, by means of priests hidden inside of statues or using speaking tubes, it is claimed by some authorities—and denied vehemently by others—that some of the ancient priests were expert ventriloquists. According to the one school of thought, even in very early times Egyptian

priests knew how to make effective use of "paunch prattle". This bit of deception was practiced in order to make not only the statues of the gods, but also the "sacred" animals such as cats, dogs, and bulls "talk".

It is believed that the actual ventriloquism was carried out by minor priests who were provided with written "lines" prepared for the occasion by the more advanced high priests. During sacrifices, pageants, etc., the ventriloquists took their cues from their superiors, reading their "scripts" and making their voices apparently issue from whatever animal or object was being worshipped by the masses at the time.

**T**HE FIELD of optics, too, seems to have been a fertile one for the scientifically-minded priests of antiquity. Even though the ancient races were not acquainted with those combinations of lenses and mirrors which constitute the microscope and the telescope, they were certainly conversant with the properties of plane, concave, and convex mirrors—singly and in series. As for the materials from which such mirrors were made—there is abundant evidence to show that the Egyptians, and other people of antiquity, used mirrors of polished silver, copper, and an alloy of copper and tin. It is extremely doubtful if steel mirrors were employed to any great extent, since steel did not come into general use until Roman times. Moreover, steel rusts and corrodes easily—a trouble which would not occur to such an extreme degree with the non-ferrous metals just mentioned.

One or more mirrors—correctly placed and manipulated—was apparently the instrument by which such stupendous effects as the actual appearance of various heathen gods from out of clouds of light and into the temples was stage-managed. In the imperfect accounts which have come down to us, describing these arrangements and apparitions, all the elements

of the optical illusion can be traced. Today, of course, any good photographer can take a picture showing twenty pretty girls, simply by using one pretty girl and a number of mirrors. In ancient times, of course, such knowledge belonged only to initiated priests and kings and was jealously guarded by them.

In the ancient temple of Hercules at Tyre, for example, Pliny tells us that there was a great seat of consecrated stone "from which the gods easily arose". Esculapius often showed himself to his followers in his temple at Tarsus; the temple of Enguinum in Sicily was justly celebrated as a place where the various gods and goddesses exhibited themselves to mortals; and Jamblichus claims that the ancient magicians caused the gods to appear "amid fire and clouds".

An example of this particular sort of delusion is contained in a description written by Damascius describing "mysteries" that took place in the temple of Osiris (or Adonis) in Alexandria. *In a manifestation, says Damascius, which ought not to be revealed... there appeared on the wall of the temple a mass of light which at first seemed to be very remote; it transformed itself in coming nearer, into a face evidently divine and supernatural, of a severe aspect, but mixed with gentleness, and extremely beautiful. According to the institutions of a mysterious religion, the Alexandrians honored it as Osiris and Adonis.* Productions of apparitions of this nature with mirrors is a much more logical explanation than the claim made by certain scholars that "mass hypnotism" was employed by the priests.

**A**NOTHER optical illusion used to fool the worshippers made use of a clever architectural device. In the shrine of Sekhmet—(a goddess with the head of a proud lioness)—at Karnak, a small aperture was left in the roof above the head of the statue. To the worshipper coming into the room,

out of the blazing glare of the Egyptian day, the dark temple at first appears to be empty. However, as his eyes become accustomed to the semi-gloom of the room, the black, granite lioness-headed statue of Sekhmet appears before him, growing darker as the chamber becomes lighter. The reason for this optical illusion lies in the arrangement of the lighting and in the fact that the statue is actually darker than the surrounding gloom of the chamber.

The principles of hydrostatics was also employed, to some extent, to further the work of deception practiced by the ancient priests. The marvelous fountain (described by Pliny) located on the Island of Andros, which discharged wine for seven days and water during the rest of the year; the three empty urns which filled themselves with wine at the annual feast of Bacchus in the city of Elis; the various "weeping" statues—these, and other similar phenomena, might easily have been worked by the manipulation of liquid pressure.

Although we usually think of the ancient races as having been somewhat deficient in mechanical skill (at least, compared to our modern American standards), some of the most telling effects produced by the priests of Egypt, Babylonia, and other countries were effected by means of novel and ingenious mechanical devices. For example, there were the "miraculous" statues of the gods—statues which made known their wants and decrees by nodding their heads, raising and lowering their arms, and by other motions.

According to Maspero, the great Egyptologist who has most thoroughly investigated this particular phase of ancient trickery, these images were made mainly from gilt and painted wood. They had movable parts, so jointed that the statues would move their arms and heads, bend their knees, and make other movements when strings, attached in some un-

known manner to these parts, were pulled.

When these idols were addressed, they replied either by gesture or by voice. Thus they gave the correct verdict on any particular question. In each temple that possessed one or more such idols, certain priests were delegated to the job of pulling the right string at the right moment, making the god nod his head in benediction or approval, shake it in negation or anger, or perhaps even raise his hand to confer a blessing upon some especially-worthy worshipper.

At least two examples of priestly interference with Egyptian politics, by means of these miraculous idols, have come down to us. These instances involved Thutmosis III and Alexander the Great. In both cases, we are told that the statue of the god, passing in priestly procession, stopped and bowed down before these men, thus singling them out as future Pharaohs of Egypt.

We are not told, however, whether a voice accompanied these priestly manipulations of the statues on these two particular occasions. Thus we have no way of knowing whether the voice of an unseen priest, hidden in the dark recesses of the temple, boomed forth at the dramatic point; whether a ventriloquist was used, or whether the statue merely bowed in silence. But at least we know that the statue moved.

**FURTHER** proof that the ancient priests were not above using their mechanical tricks for their own advantage is shown in an interesting little story told in one of the reports of the 1934-1935 Egyptian Expedition of the Metropolitan Museum of Art. The stone tablet from which this story was translated was among numerous articles unearthed at Heirakonpolis—an important city of early Egyptian history on the Nile some distance above Thebes—by a party headed by Dr. Ambrose Lansing.

Har-em-khau-ef, priest of Horus

(the falcon god) at Heirakonpolis, was the man whose self-recorded history was found. Reading between the lines which the priest actually wrote, it is all too evident that this man found life on the Upper Nile unbearably dull. Nevertheless, he bided his time and waited until the time came when he could do something about it, and get away with it. This opportune moment was when a king was to be crowned at Ith-towe—down the river not far from Memphis, a metropolis of that age—amid great feasting and scenes of pageantry so dear to the hearts of the ancient Egyptians.

Thus, to quote the story as it is unfolded on the stone tablet, *Horus . . . charged me with a mission to the court in order to bring (the images of) Horus of Hekhen, and his mother Isis.* It is considered probable that the priest put the question of this junket down the river to the statue of Horus and made the idol nod his head, thus giving the priest authority to make the trip to Memphis for the coronation activities. At any rate, Har-em-khau-ef made the trip, taking his mechanical idol with him. It seems to have been the high-spot in the priest's life, judging from the biographical tablet which he prepared for his own tomb.

Another mechanical contrivance was originated by the priests of Alexandria, and was used to open temple doors automatically, to the consternation of awe-struck worshippers. When the priests wanted to increase their revenues they would close the doors of their temple, thereby signifying that the gods were displeased with the presents which the people had been bringing. After a sizeable crowd had gathered in front of the temple and their gifts satisfied the priests, the latter would build a fire on an altar near the gates. To the accompaniment of "Oh's!" and "Ah's!" from the gaping worshippers, the temple gates would slowly open—although not a single pair of earthly hands was laid upon them. Clearly, here was a miracle!

**A** MIRACLE It was in reality—for those days, at least—since the mechanism which opened the doors embodied all the essential elements of the first practical steam-engine. Underneath the altar was an enclosed area filled with air at ordinary pressure; the air-chamber was connected to a water-filled vat by means of a pipe. Heat from the fire kindled on the altar expanded the air in the chamber underneath the altar; the force of the expanding air pushed the water from the vat, on through still other pipes, and so into buckets that were attached to the doors of the temple. As the buckets became weighted with water, they acted as counter-weights and slowly pulled open the temple doors. Naturally, the buckets were concealed.

Fire, because of its spectacular nature, was used in many of the more dramatic demonstrations by the ancient priests. One such was practiced by the pagan priests in ancient Palestine. When the priests of Baal performed this trick, they placed the sacrifice on the altar and then—in full view of the assembled multitudes—prayed loudly to their local Baal for fire. Eventually, the kindling and the logs would “miraculously” catch on fire and consume the offering; thus the priests would rise still further in public esteem.

Here's how this particular stunt was performed. Cleverly concealed under the altar was a large pit; several “channels” connected the pit with the altar proper. Before the sacrifice was started, a minor priest built a fire in the pit and tended it until he heard the high priests above him begin to call on Baal to send fire. Then the helper blew up his bonfire with bellows (bellows were being used as early as 1600 B. C. by metal workers, as is shown on Egyptian tomb and temple paintings). The flame—forced through the “channels”—set the wood to burning and created the effect of having in truth been sent by Baal,

in answer to the pleadings of his servants.

Incidentally, this priestly custom explains a certain passage in the Bible—I Kings 18, 30-35. In these verses there is a description of how the prophet Elijah prepared for his great duel with the 450 priests of Baal on Mount Carmel. After Elijah had prepared his altar with its wood and sacrifice, he ordered water poured over it three times. He took this precaution to show the opposing priests that he, at least, had no fire concealed in a pit below the altar, but that he was depending solely on his God to send down the fire.

Some scholars also believe that the pagan priests occasionally “called down fire from heaven” by means of a burning glass held in such a manner that the populace could not see it. Certainly, the ancient priests were acquainted with glass lenses.

The ability of the lodestone to attract iron was also used to mystify people. Thus, certain priests prepared statues of the gods and goddesses from it, and made other statues of iron. When placed close together, the iron statues would move towards those made of lodestone at the command of the priests. Thus, the priests would convince the people that they had power to command the movements of the gods.

Ruffinus informs us that the temple of Serapis—favorite god of Ptolemy I—was found to be filled with secret passages and machines constructed for the impostures of the priests. Among other things, there was a great lodestone set into the temple's ceiling directly above the statue of Serapis.

On a certain day of the year the beams of the sun—entering through an aperture on the east side of the temple—fell full upon the mouth of Serapis. At this instant, the priests would bring in an “image of the sun” made of iron. This image the priests held close to the statue of Serapis—

and incidentally, close to the huge lodestone. The iron ball then rose up and attached itself to the natural magnet, hanging in front of the god's face while the priests explained to the worshippers that the sun itself was saluting Serapis. If this trick worked—and Ruffinius claims that it did—it must have been a honey!

**G**REATEST of all ancient hoaxes, perhaps, was the oracle at Delphi. Here, according to popular belief in olden times, the priestess (or sybil) inhaled gasses which issued forth, naturally, from a crevice in the ground. The fumes were said by the priests to be the sacred emanations supplied by the gods, and they threw the sybil into a "sacred" trance. While in this state of trance, the priestess uttered a meaningless jumble of words and sounds which were believed—by the common people, that is—to have been inspired directly by one or another of the various Greek gods.

The ravings of the sybil were later translated by the Delphic priests into a sort of double-talk—often in rhyme—which usually had two diametrically opposed meanings. So it was that when Croesus, fabulously rich king of Lydia, asked the oracle at Delphi what would be the outcome if he made war on the Persians, the oracle's answer was, *If you march against the Persians, you will destroy a great empire.*

The vain Croesus took this answer to be an omen of good fortune. He attacked the war-like Persians, who liquidated the Lydian armies and captured the royal person of Croesus with the greatest of ease. But of course the oracle was right—only the "great empire" which was destroyed happened to be the empire of Croesus!

It has long been known that the priests of Delphi kept a large group of "undercover" men in all the great empires of that time. These spies made frequent reports to headquarters at Delphi of all the important movements which they discovered. By putting all of this information together, the

priests were in a position somewhat analogous to that of our modern Washington columnists who broadcast "forecasts of things to come" from an intimate knowledge of the secret doings of our own and other governments.

In addition to translating the sybil's wild ravings in any manner they saw fit, and basing this "translation" on their knowledge of world events, the priests had also concocted a mechanism so that there would never be any lack of the "sacred emanations" which threw the prophetess into her trance. For these fumes were *not* natural gasses rising from the bowels of the earth, at all; they were manufactured as needed by the Delphic priests who overlooked no detail so that their oracle factory should function on schedule—and also to their own best advantage, as witness the enormous wealth gathered at the Oracle of Delphi.

**R**ECENT archaeological research has proved that the gasses were produced by human agency and were *not* natural. Investigation has also shown just how the fumes were piped from the source of their inception, through the floor of the sanctuary, and so to the very feet of the sybil herself.

As the fumes—which were produced in a small chamber immediately beneath the tripod on which the sybil sat—rose about the girl, she inhaled them and so passed into an artificially-induced trance. Scientists are not yet agreed on what substance was used to produce such powerful fumes. It is the opinion of L. B. Holland—authority on Delphi—that the substance may have been some form of hashish. Moreover, Dr. Holland believes that the priestess may have helped matters along by chewing the leaves of the oleander, which contains a toxic element akin to digitalis in its action. Mr. Holland, however, adds that he does not know what the exact results

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## THE BLACK MAGIC OF YESTERDAY

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of such a mixture would be—nor does he ever expect to know unless someone else tries the experiments and then tells him about it.

There were many other feats of “black magic” practiced by the pagan priests, all based on fundamental science. There was the use of glass eyes in the statues to produce certain desired effects. Another bit of ingenuity was the practice of drawing figures of the gods on a temple wall, which had previously been coated with naphthol. When flaming torches were played before these walls, the figures appeared to assume weird shapes and to writhe and move about fantastically. A bladder—formed into the shape of a human being and coated with wax—was also exposed to heat with somewhat similar results. And phosphorus was applied to the images of the gods with truly startling results.

This, then was the “secret power”—the knowledge of “hidden spiritual strength”—which charlatans today claim the ancient pagan priests possessed. The pagan priests never possessed any hidden sources of strength and wisdom, knowledge of which was “lost” long ago! The power of the pre-Christian priests rested solely on a smattering of scientific facts, which they exploited for their own enrichment.

