

The rivets in particular proved an expensive problem. Each hole had to be drilled; if steel were used, 20 rivet holes could have been punched in the time taken to drill the hole for one rivet.

Though iron has been eliminated from bath fittings in every other respect—by installing enameled teak tubs, for example—the designers did find one steel part they have been unable to eliminate—razor blades. But crew members, as well as not being permitted to have steel knives, will not be allowed steel buttons on their clothing. The scientists and others who must keep records will have to use brass paper clips instead of the more familiar steel wire type. One or two chisels and a saw will have to be steel, but they will be stowed as far away from the instruments as possible.

The Research will indeed pick up where the Carnegie had to leave off, for its first voyage will be to the Indian Ocean, where the ill-fated American vessel was to have gone in 1930, the year following its unforeseen disastrous end. Already, the Research's captain, Commander D. H. Fryer, is getting ready for his novel duties by taking a long voyage on a sailing ship.

Science News Letter, April 1, 1939



YOU WON'T SEE THIS OFTEN

Skilled craftsmen revive an ancient art by pounding in strands of oakum, later to be sealed with tar, to make the R. R. S. Research hull watertight. The hull is of teak. The days of "wooden ships and iron men" are not coming back . . . the men can't be iron on this boat. Crew members won't be permitted steel buttons or knives.

ARCHAEOLOGY

Solve Math Problem Of Egyptian Workmen

TWO Egyptologists have set themselves an arithmetic problem: Knowing dimensions of a huge artificial lake at Thebes, and the brief time in which Egyptians dug it, how many workers were required?

Reporting their work in the *Bulletin de l'Institut d'Egypte*, R. Engelbach and J. W. Macaldin take a privilege that school boys would envy. They offer two answers.

Either Pharaoh Amenophis III put 242,652 men to work on this lake of his, or else he employed 777,262. Even the smaller number would populate a sizable city. The men were rushed to work on the lake project and 16 days later water was let in, and Queen Tiy and King Amenophis sailed regally on their newest possession.

That Egyptians could organize for so swift a job is impressive. Amenophis announced the news of the big lake on a commemorative scarab, which told practically everything a news reader would want to know except the amount of labor. That probably was not rated of

news interest in 1396 B. C. The lake was over a mile long and over half a mile wide.

The Egyptologists get two answers as to laborers required because they do not know how far away the excavated earth was carried. If workmen dumped earth close to the lake, for the time being, 140,716 carriers would have been enough. If earth was removed to mounds farther off, 675,366 carriers were needed. In addition, the Egyptologists figure 50,968 diggers and an equal number of assistant diggers were required. They figure the problem by assuming the excavation was divided into bays in which gangs of diggers and carriers worked together. Egyptians work that way today.

Why Pharaoh Amenophis, one of Egypt's most glamorous and luxury-loving rulers, wanted the lake dug is uncertain. It may have been for his wife's enjoyment. Or it may have been designed as the private harbor for palace boats.

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PSYCHOLOGY

Color Blindness May Be In Mind as Well as Eyes

THE extremely close ties between the workings of the human mind and the human body are given new emphasis by an experiment in which color-blindness was produced by suggestion in a hypnotic trance.

When you see red, it is because of certain physical signals to the retina of your eye. But the interpretation of these signals as red—in fact the perception of them at all—depends upon your mental "set."

At Eloise Hospital, in Michigan, Dr. Milton H. Erickson hypnotized six persons with normal color vision and by suggestion deprived them of the ability to see red, green, red-green, or any color at all. The results he reported to the *Journal of General Psychology*.

It was not a simple task. First, under hypnotism the subjects were made com-

pletely blind. When they awoke from their trance, they were still blind and suffered from all the distress that you would feel if you suddenly roused from sleep without the ability to see.

This put them in a frame of mind to accept the restoration of sight upon any conditions set by the hypnotist. The condition was that they might see objects but not all colors. The suggestion of blindness for one color was carefully made so that the subject would lose all awareness of that color and even the name of it would become to him mere nonsense.

A strange incident occurred to emphasize the actual complexity of the relatively "simple" vision of color. One man who had in this manner lost his vision for red happened, more or less accidentally, to attempt to count his fingers. He

was puzzled to come out with the total eleven although he knew perfectly well that he had only ten fingers and thumbs. Again and again he tried. Counting gave him eleven; knowledge gave him only ten. Counting by two's he got ten; counting by one's he got eleven. It was soon evident to the examiner, but not

to the subject that he had lost his knowledge of the number three—each time in counting he skipped it.

Restoration under hypnosis of the concept of three automatically restored his color vision for red. The number three to this man meant red.

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ARCHAEOLOGY

Fate of King Solomon's Gold May Be Revealed in Find

FATE of King Solomon's Temple treasures may be revealed to the modern world, as archaeologists gaze wonderingly at the golden sarcophagus and inner silver coffin of Pharaoh Sheshonk, found in the Nile Delta at Tanis.

Perhaps millions of dollars worth of gold and silver melted to form these massive cases include cups and bowls from Solomon's Temple and palace in Jerusalem.

Ascribing the royal tomb to Pharaoh Sheshonk dates it as belonging to the twenty-third dynasty, and after King Solomon's death. The family alliance which Solomon made with Egypt, when he married a Pharaoh's daughter, wrought no permanent friendship with Egypt. Pharaoh Sheshonk the First—called Shishak in the Bible—invaded Palestine and sacked Solomon's Temple and Palace in Jerusalem, carrying off rich hauls of gold and silver.

What happened to this historic property in Egypt has often been wondered. Pharaoh Osarkon the first, who succeeded Sheshonk, made conspicuously generous gifts of gold and silver bowls and cups to priests in Egyptian temples.

His lists of religious giving include references to weight, which might imply fortunes in silver and gold. It is not too fanciful to suppose that some of the Hebrew art objects and Temple furnishings were converted into spectacular coffins for conqueror Sheshonk or one of the three later kings of this name.

That a rare turn of fate preserved the tomb of Sheshonk undisturbed is shown by the fact that Prof. Pierre Montet of the University of Strasbourg encountered only empty tombs until he met a solid wall, and discovered this tomb hidden back of it.

Egypt in the twelfth and thirteenth centuries B. C. had drifted into serious economic depression, when looting royal tombs at Thebes became a customary way for desperate natives to make a living. Harassed Pharaohs rescued royal mummies from plundered tombs, and moved them from one place to another, but found no rest for the Pharaohs until they dug a pit back of a temple in Thebes cemetery. There an illustrious assembly of royal Egyptians was found by Maspero in 1881, and these mummies now repose in Cairo Museum.

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Bureau of Dairy Industry will report the technical details of their discovery at the coming meeting of the American Chemical Society in Baltimore, early in April.

The cream from cow's milk is skimmed off to make butter and the casein is removed to make cheese or casein molding compounds. Then the virtually worthless whey is freed from its lactose, or milk sugar content. By fermenting the lactose, lactic acid is obtained and out of the latter comes the transparent, springy and tough polymethylacrylate.

The new discovery will be significant for Italy where the casein of milk is now being used on a large scale to produce lanital—a synthetic wool substitute used in army uniforms, blankets and general clothing. The Italians are at present neutralizing the whey and feeding it to swine, but they can just as easily turn the lactose into lactic acid and wind up with polymethylacrylate that will turn their lanital clothing into poison gas-resistant clothing.

Production of polymethylacrylate from lactic acid is just as cheap, report the U. S. chemists, as is its preparation from ethylene and alcohol by the customary cyanhydrin process. Polymethylacrylate products are in demand for the preparation of lacquers, varnishes, inks, cements and impregnating compounds. The established market means a wider outlet for dairy products.

While polymethylacrylate alone cannot be turned into hard, transparent resins it can be combined with the related organic glass and by polymerization yield a transparent resin superior to its component parts.

Science News Letter, April 1, 1939

Poison ivy and ragweed are unknown in Yellowstone National Park.

CHEMISTRY

Whey Product Makes Cloth Resistant to Poison Gas

OUT of the whey of cow's milk—now virtually a waste product of the dairy industry—government scientists are producing a new chemical that has the power to prevent the penetration of poisonous gases through clothing.

The chemical, looking and feeling quite like a transparent art-gum type of

eraser, is polymethylacrylate. While related chemically to the transparent resins known as the organic "glasses" it cannot, of itself, be made into a hard material. Mainly its greatest use comes from the impregnation of fabrics so that they are resistant to oil, water and gases.

Dr. Lee T. Smith and H. V. Claborn of the research laboratories at the U. S.

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