Stole Secret From Nature and Made New Joints for Old

THE onward march of surgery is ever crowding that dismal word, incurable, into narrower limits. Under the white banner of asepsis—absolute surgical cleanliness—the modern operator stretches forth skilled, courageous hands, lifts the "hopeless cripple" from his bed and sets him up again a sound and useful member of society.

Physicians for generations have observed that when muscle or other soft tissue becomes interposed between the ends of broken bones a false joint results. That is, instead of the fragments knitting as they should, a movable joint develops, with the formation of cartilage, membranes and lubricating fluid exactly like a normal joint. It has been a common observation also that serious injury, inflammation or fracture of a joint is very likely to leave the joint partially or wholly useless—immovable or ankylosed, as a doctor would say.

In order to remedy the former condition (non-union or false joint at the seat of fracture) it is customary for the surgeon to cut down on the fracture, clear the interposed soft tissues away, freshen the fractured ends and wire, nail or otherwise hold them in contact until bony union can take place. The majority of these operations, even under discouraging conditions, prove remarkably successful.

For the stiffened or ankylosed joint, however, there has been no such ready cure. If efforts at passive motion failed to give benefit the alternative has been to place the patient under ether, forcibly break up the fibrous or body adhesions, binding the joint, and then trust to good fortune that some motion may remain when the reaction from this rough handling subsides. This measure has, unfortunately, failed in many instances; and, for old, chronic cases of absolutely rigid joint of years' standing, is scarcely applicable at all.

About 1900 Dr. John B. Murphy, the Chicago surgeon, undertook a series of experiments on animals, looking toward the formation of new joints, and in 1902 he performed the original operation upon a human being. Curiously enough, Dr. Murphy's procedure is an excellent imitation of the work of that bungling old surgeon who has been making new joints in the wrong place these many centuries—Nature. That is to say, Dr. Murphy simply interposes certain soft tissues between the bones where the movable joint is required, nails the necessary extra portions of bone in place with plain wire nails, and sews up the job with confidence in his own asepsis and nature's kindly aid.

In joint surgery as nowhere else rigid aseptic technic is imperative. The slightest shortcoming in this essential spells failure if not worse disaster. That is why so few surgeons of even recognized ability as yet dare attempt the operation Dr. Murphy performs so successfully; they haven't sufficient confidence in their own ability.

"Not even a gloved hand must be allowed to come in contact with wound, sponge or instrument," writes Dr. Murphy, describing his technic in the *Annals of Surgery*. "The nutrition of the tissues is such that they cannot withstand infection as well as normal tissue does, and therefore we are exceedingly careful in practising all the principles of asepsis."

Obviously this work is not for the all round specialist who operates as a sideline. "If our aseptic precautions are effective," reiterates the distinguished author, "half the battle is won."

On the other hand, if any break occurs in the routine of aseptic technic, well, for instance: A morphine habitue had both hip joints operated on. The operation on the first one gave a good movable joint. But twelve days after the second one had been operated on the patient tore off the bandages in a fit of anger because the nurse would not give him morphine; he developed a wound infection, which in spite of every possible effort to the contrary went on to a fatal termination three weeks later.

In operating on ankylosed or useless joints the steps are clearly prescribed by Dr. Murphy. If it is, say, a hip joint to be restored, the first thing necessary is to saw off the bony prominence called the trochanter, or commonly the prominence of the hip. This gives access to the underlying hip joint.

The head of the thigh bone is now chiselled out of its bed in the socket of the hip, an ordinary carpenter's chisel and a mallet being employed for this work. The socket is then ground smooth with a reamer and the rough ball of the thigh bone milled with a cup shaped end mill to fit perfectly the newly ground socket, the instruments being fashioned very accurately for this purpose.

Next a flap of fascia and fat from just beneath the skin of the thigh is dissected free at one end, drawn into the joint and stitched in place with a fine phosphor bronze wire. The nutrition of this flap will of course be maintained by the normal blood supply through its unsevered attachment to the thigh. This is the novel feature of Dr. Murphy's operation, the secret he unhesitatingly appropriated from his old competitor, old Doctor Nature. The only difference between Nature and Dr. Murphy is that the latter takes pains to make the new joint where the patient wants it.

The flap being securely fastened in place, the head of the thigh bone is replaced in the socket, the sawn off trochanter nailed back in place with an ordinary six or eight penny wire nail and the muscles and skin neatly sutured together.

The wound is dressed with exquisite care and the leg placed in splints with pulley and weight pulling over the foot of the bed to prevent pressure on the interposed flap by the head of the thigh bone. After about the tenth day moderate passive motion is applied daily, though the splint is still kept on for three or four weeks. After that the patient is allowed up and around on crutches and he is encouraged to swing the leg in all directions.

On any other ankylosed joint the same principles apply with equal effect. Absolutely useless shoulders, knees, elbows and even fingers are amenable to this ingenious method. It truly offers new joints for old, useful limbs for "incurable" ones. One patient with an ankylosed jaw, caused by inflammation of some sort during childhood, was unable to open his jaw the slightest fraction of an inch. Dr. Murphy gave him a new jaw with which he renewed the process of mastication that had been lost for many years.

Arthroplasty is the scientific term for the operation, meaning joint building. It will prove a godsend to hundreds of invalids who have resigned themselves to a lifetime of dependence on others. A surgeon skilled in the technic of arthroplasty may walk through the wards of institutions for "incurables," select this child, that man and the other woman here and there, perform the operation devised by Dr. Murphy and restore them to their rightful heritage.

Need we idly dream of impossible transplantation experiments when the invalid possesses within his own body all that is required for the building of a perfectly satisfactory joint? No, for in this operation Dr. Murphy, through study of Nature's method, has evolved a practicable short cut which brings new joints within the reach of the most hopeless "incurables."

We Are Superstitious, Says Riccardo Martin—His Lucky "9"

ARE you superstitious? Do you feel misgivings when you fail to "knock wood" when you walk under a ladder, break a looking glass, spill the salt or hit upon the number 13? Does the dropping of a table knife on the floor impress you?—looking at the moon over the left shoulder?—walking by a post and separating yourself from your companion?—starting a long journey on Friday?

Few persons are willing to admit that there are many things of this character that interfere with their peace of mind and yet it is true that the thought force of thousands of civilized people is daily stirred by each of these seeming trifles. There is no question that knowledge of the superstitions mentioned is shared by the cultured as well as the uncultured, by the workers as well as the drones, by the philosophical as well as the narrow minded and the rich and poor alike.

"Every man, woman and child on this planet is superstitious," declared Riccardo Martin, the noted American opera tenor, in a recent interview. "Most persons deny the possession of the trait, but those who deny it are often most easily swayed by these inexplicable influences."

Mr. Martin in his travels through many foreign countries and America as well has been interested in investigating folk lore, legends and old superstitions. He asserts that while Americans because of their materialistic turn of mind have the least superstition of any race, they individually possess this quality in no small degree.

"Many persons refute the charge that they recognize omens or are influenced in any way by them," adds the opera star, "and in so doing intend to speak the truth. But by the very knowledge of the familiar subjects of superstition they unconsciously permit themselves to be guided at times when decision upon a course of action hangs in the balance. I have never met an opera or concert singer or actor who has not been superstitious in one way or another. Most of them frankly admit their susceptibility to the influence. Many frank talks with individuals of various professions convince me that no one is entirely impervious to these mute symbols. Belief in the supernatural, reliance upon intuition and ignorance of esoteric causes in general, combine to place human kind within the pale of superstition. It would be unnatural otherwise. Superstition has its root in ignorance to be sure, but who is not ignorant? Who is prepared to say that he can trace every thought and happening back to its remotest cause? We have seen convincing demonstrations of thought transference, spiritual phenomena and prophetic power of which the ordinary man knows little or nothing. Who is without more or less respect for such hidden influences?

"The majority of Americans will not admit their superstition. Those things which are most commonly regarded as significant of some future happening are pleasantly derided. In the closed book of one's daily life, however, there is many an idol and symbol, some small happening of personal significance that carries its spell for good or ill.

"Persons who read much exciting fiction, card players, entertainers, sailors, soldiers, aviators and brokers are among the more superstitious classes. Those in whose lives chance is repeatedly playing its part are especially likely to be guided by intuitions that are traceable to superstition of a pronounced sort.

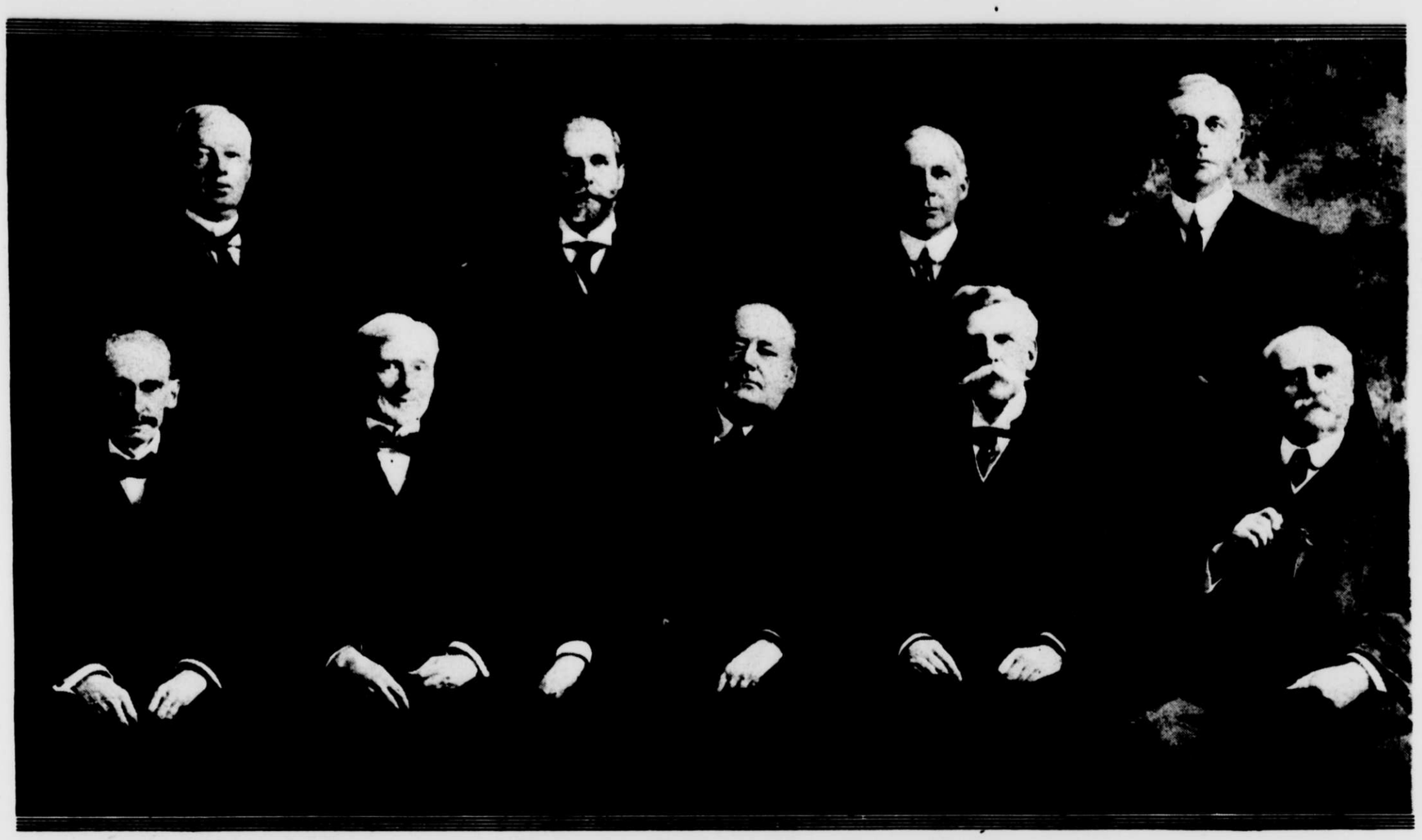
"I am not defending this trait, which is obviously a weakness in its antagonism to sound reason, but merely asserting that no one is immune from its domination. That which truly guides many must be recognized in one way or another by all, and where recognition exists, influence, be it even so meagre, is exerted. Suppose I tell a friend that I have not had a fever for three years. Ten to one he will reply 'Better knock wood.' Whether I follow this half serious suggestion or not in my thoughts has been placed a superstition. 'Pshaw!' I say, and speedily forget the whole matter, but the little weight of the friend's suggestion fast creeps upon the brain and is subject to recollection. The next time I speak of my good fortune in any particular, the suggestion 'knock wood' arises with probably added force. To be sure I may ridicule, but the very fact that the thought of unpleasant consequence has arisen is sufficient to develop the quality of superstition in which unfortunately many persons take morbid satisfaction.

"In my own case, while the dread of easily affected minds has always amused rather than appalled me, I am obliged to confess a feeling of respect for certain obscure phenomena and sublatent influences. Most of the major successes of my artistic career have been marked by the number 9. It has occurred so persistently that no one in my place could fail to be impressed. The number 13, undoubtedly the cause of much foolish fear, has nevertheless been an unfortunate omen in my case. Naturally when the former figure comes before me I feel easier than confronted by the latter. While 9 seems to give me strength and courage a 13 engenders a little apprehension, enough to interfere with proper concentration.

"The same observance and obedience of omens that once moved men and nations and controlled the early destiny of the world, that which made warriors go to battle, a hero to take his own life or a father to offer up his own son a victim still maintains in diminished force. It stands directly in the path of accomplishment and ruins hundreds of thousands of lives. It will take centuries to eliminate this evil factor; not until the mind through evolution has arisen to a higher plane of understanding and the knowledge and instructive appreciation of cause and effect shall have come to guide us more completely will this unhealthy, paralyzing influence be banished from the earth.

"In these days when a myriad of different gods are still worshipped, when ideals and ambitions surge in increasing conflict in every quarter of the globe and man is helpless to fathom the great depth of mystery which lies between him and his beginning and end, who can blame his neighbor for dreading the unknown? But let us not encourage these fears, but dispel them by cool reason, stop reading ghost stories to children, let up a little in this habitual contemplation of chance, regard the fates as non-existent and make of our religion something as definite and practical as a spiritual force can be."

ONLY PHOTOGRAPH EVER MADE OF NATION'S HIGHEST COURT



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JUSTICES OF THE SUPREME COURT OF THE UNITED STATES.

From left to right, standing—Joseph R. Lamar, Georgia; Charles E. Hughes, New York; Willis Van Devanter, Wyoming, and Mahlon Pitney, New Jersey. Seated—William R. Day, Ohio; Joseph McKenna, California; Chief Justice Edward Douglas, Louisiana; Oliver W. Holmes, Massachusetts; Horace H. Lurton, Tennessee. The salary of Chief Justice is $15,000; Associate Justices, $14,500.

IN PUZZLELAND—Don Quixote and Sancho Show Some Tricks

Don Quixote and his faithful follower, Sancho Panza, furnish this week's adventure in Puzzleland. You see, old King Puzzlepate expects all his visitors to bring puzzle offerings, so the Don brought a model of his famous windmill packed in a square box.

In the picture we see how he constructed the windmill from nine geometrical pieces, and the King and his beautiful daughter, Princess Enigma, are studying out the puzzle of how to rearrange the windmill into its square form. Perhaps you can show them how to cut the windmill into its nine pieces and form a square from those pieces.

In the meantime the Court attendants are making merry with poor Sancho, who happened to mention that he was celebrating his birthday. They are tossing him into the air just as many times as he has lived years. When they asked him his age he replied:

"Multiply one-half of my age by one-quarter of my age and the product will equal the Don's age, which is just twice my age."

Now how many times did they toss poor Sancho into the air?

Puzzle solving is a contest of skill. Young people learn valuable principles in mathematics and other studies through puzzles, and to encourage this helpful pastime and as a reward for cleverness THE SUNDAY SUN offers one prize of $5 in cash for the best correct answers to the two puzzles. "Best" means not only correct solutions but the best expressed answer, not exceeding 200 words, telling how the solutions were arrived at. The only conditions are that answers shall be received in The Sun office on or before midnight, January 19, 1914. Address Puzzle Department, THE SUNDAY SUN, New York. All letters will be carefully examined and the decision of the Puzzle Editor must be accepted as final. The question of "time of receipt" of letters is not taken into consideration, so long as they are in The Sun office before time and date mentioned.

This contest is open to all, whether they are subscribers to THE SUN or not. The answers to the two puzzles will appear in THE SUN of SUNDAY, FEBRUARY 1, 1914, and the name of the winner of the $5 prize announced.