

A note on the radio-carpal articulation / by Francis J. Shepherd.

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Shepherd, Francis J. 1851-1929.
Bryant, Thomas, 1828-1914
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Publication/Creation

[London] : [publisher not identified], [1891?]

Persistent URL

<https://wellcomecollection.org/works/x94abecd>

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A NOTE ON THE RADIO-CARPAL ARTICULATION.

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(Read at the meeting of the Association of American Anatomists held in Boston,
U.S.A., December 1890.)

ONE of the most complete and generalised forms of carpus is seen in the Water-tortoise. In this animal it consists of two rows of bones, the distal row containing five bones, and the proximal three, with a central bone between the two rows. The bones of the first or proximal row are the "radiale," "ulnare," and "intermedium," which correspond in the human carpus to the scaphoid, semilunar and pyramidal bones; the radiale and ulnare articulate with the radius and ulna, while the intermedium, as its name implies, is placed between the two others, and articulates with both the radius and ulna. Now the same thing occurs in the human carpus. The scaphoid articulates with the radius, the pyramidal bone with the ulna or with the cartilage interposed between its upper surface and the ulna, while the semilunar bone (intermedium), by its upper surface, articulates with radius, and also with the meniscus, which separates it from the ulna. The object of my paper is to show that the semilunar always articulates with the ulna, not immediately but by means of the interposed cartilage or meniscus. In only a few text-books¹ of anatomy is this fact stated. The majority state that the upper surfaces of the scaphoid and lunar bones correspond with the radius, and that the upper surface of the pyramidal bone corresponds with the triangular fibro-cartilage, which separates the ulna from the wrist-joint. Henle many years ago taught the proper method of articulation, and described it in his *Handbuch*; but most of the text-books on anatomy have ignored his observations.

¹ *E.g.*, Henle, Quain, Cunningham, Ellis. In describing the semilunar bone, all the works on Anatomy I have consulted fail to mention the connection of the bone with the meniscus.

If one looks at the upper surface of the semilunar, one will find that it is somewhat triangular in shape, the rounded angle of the apex of the triangle being toward the pyramidal bone, and continuous with its upper surface and the base towards the scaphoid. In the fresh state, when this surface of the semilunar bone is covered with cartilage, a distinct line may be seen separating the surface, articulating with the radius from that opposite the fibro-cartilage. This latter surface, from the examination of a number of subjects, I find varies considerably in size and extends more to the palmar than the dorsal surface. When the upper articular surface of the pyramidal bone is of large size, then the facet on the lunar bone opposing the meniscus is small, and *vice versa*. In some cases the upper surface of the pyramidal bone may not be in contact with the fibro-cartilage at all, except in extreme adduction; when this occurs there is a large surface of the semilunar bone in contact with the fibro-cartilage, the small articular facet on the pyramidal being in contact with the capsule of the joint. In other cases the portion of semilunar bone opposite the meniscus is so small as hardly to be noticeable, consisting merely of a very narrow strip, a line or two wide, on the ulnar side of the upper articular surface. Years ago, not knowing what had been done by Henle, my attention was directed to this articulation of the lunar and pyramidal bones whilst investigating the frequency of perforation of the triangular fibro-cartilage. I frequently noticed that when there was a perforation of the meniscus it was due to some form of synovitis or arthritis, and that the surface of the carpus opposite the perforation was *always* a portion of the semilunar bone. When the opening was small this surface was dull, and did not glisten like the rest of the cartilage; later, as the opening *wore* larger and friction became greater, portions of the cartilage became roughened and loose; later still, the cartilage disappeared altogether leaving a spot of bare bone, which corresponded to the opening in the fibro-cartilage. If the process still went on, this bare bone became polished or eburnated as well as the lower end of the ulna, which went through the same changes, though not so rapidly. In such cases I was always struck by the fact that this roughened or eburnated surface was of larger extent on the semilunar than

on the pyramidal bone. It is not uncommon to see the articular surface of the lower radio-ulnar articulation and the surface of the carpus opposite the disappearing meniscus disorganised, whilst the rest of the wrist-joint remains perfectly healthy. Perforation of the meniscus is, in my experience, rarely normal; in nearly every instance I have found it due to some pathological condition, caused either by injury to or disease of the lower radio-carpal articulation.

[A number of preparations, both moist and dry, illustrating this paper, were exhibited to the members of the Association.]

of the country. It is a country of great beauty and interest. The people are friendly and hospitable. The climate is healthy and agreeable. The soil is fertile and productive. The commerce is extensive and flourishing. The government is wise and just. The laws are well administered. The people are happy and contented. The country is a land of opportunity and progress.

The history of the United States is a story of growth and achievement. It is a story of the people who have built this great nation. It is a story of the challenges they have overcome and the triumphs they have achieved. It is a story of the values that have guided them and the principles that have shaped their destiny.