

Letters to the Editor

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NOTES ON POINTS IN SOME OF THIS WEEK'S LETTERS APPEAR ON P. 721.

CORRESPONDENTS ARE INVITED TO ATTACH SIMILAR SUMMARIES TO THEIR COMMUNICATIONS.

Discovery of an Additional *Pithecanthropus* Skull

DURING the systematic search for fossil man in Java, one of us (G. H. R. von K.) discovered, in 1937, in the Trinil formation of Sangiren (Central Java), an almost complete brain case of *Pithecanthropus*¹.

Amongst the material recently collected (July 1938) from the same area, a large fragment of an additional *Pithecanthropus* skull came to light. The fragment consists of the complete right parietal bone with the adjoining part of the left parietal bone and a small piece of the occipital bone. The three bones embrace in their original and entirely undisturbed arrangement a stone core composed of sandy tuft mixed with lapilli. The sagittal suture reaching from bregma to lambda is completely preserved. The right parietal bone also exhibits all the other sutures, only the sphenoidal angle being broken off. The coronal contour of the parietal bones is characterized by a very pronounced sagittal crest. Laterally there is a distinct depression reaching to the temporal line, from which the contour runs steadily outwards down to the squamous suture. The temporal line runs strikingly close to the sagittal suture.

These conditions entirely correspond to those which are characteristic of the *Sinanthropus* skulls. The pronounced flattening of the cap, so specific for the two *Pithecanthropus* skulls known hitherto, is completely missing in the case of this new *Pithecanthropus* skull. On the other hand, this skull has the following peculiarities in common with both *Sinanthropus* and *Pithecanthropus* skulls: the lowness of the entire cap and the position of the greatest breadth, the latter having undoubtedly been situated above the origin of the zygomatic arch, as is the case with all *Sinanthropus* and *Pithecanthropus* skulls.

According to the state of the sutures, the new skull belongs to a juvenile individual, in spite of the fact that the parietal bones show a thickness of more than 10 mm. near the bregma, and that the temporal line is well developed. The region of the occipital torus is preserved only to a very small extent, revealing only a faint swelling, apparently in correspondence with the age of the individual.

All the new *Pithecanthropus* finds demonstrate how important and promising it is to search for fossil man in Java, and to continue the work which has been made possible thanks to the generous support of the Carnegie Institution of Washington, D.C.

G. H. R. VON KOENIGSWALD.
FRANZ WEIDENREICH.

Bandoeng,
Java.

Two Stellar Systems of a New Kind

SOME months ago, an extremely faint, widely-extended stellar system in the constellation Sculptor was reported from the Harvard Observatory¹. In many respects it appeared to be unlike any known stellar organization. The finding more recently of a similar system in Fornax, on photographs made with the telescopes at the southern station of the Observatory, suggests that a description of these objects may be of general interest.

The two objects are separated in the sky by a little more than 20°, and both are in the south galactic polar cap². The following tabulation, in which some of the quantities are clearly provisional, compares the two systems:

	Sculptor Cluster	Fornax Cluster
Right Ascension	0 ^h 57.8 ^m	2 ^h 37 ^m
Declination	-34° 2.5'	-34° 47'
Galactic latitude	-83°	-64.5°
Angular diameter	80'	60' +
Total magnitude	9.0 :	9.5 :
Magnitude of brightest stars	17.8	18.0 :

The distribution of stars is very similar in the two systems. There are no irregular nebulosities, no clumping of stellar images, no sharp or bright nuclei—only smooth and essentially symmetrical concentration to the centre, with approximately 10,000 stars to magnitude 19.5. In uniformity and radial symmetry they resemble globular star clusters.

The occurrence, within the areas covered by the clusters, of numerous faint external galaxies of the usual types and abundance, shows that space absorption within the clusters is negligible and also permits the close comparison of their members with faint spheroidal galaxies. It is thus determined that these two systems are not supergalaxies (rich groups of galaxies), but are composed of stars.

The distances and linear dimensions could be readily determined if we knew the absolute magnitudes of the brightest stars. Colours and spectra may be procured eventually and assist in evaluating the luminosities, but at present we hope to find the distances through the discovery and measurement of Cepheid variables among the stars of magnitude 19.5 and brighter. Appropriate plates are being taken with the 60-in. reflector at Bloemfontein.

It is probable that the resemblance to globular clusters also holds for the distribution of absolute magnitudes and that the distance modulus, $m - M = 5 (\log d - 1)$, for these two objects is not greater than 19.5. The corresponding distance of eighty kiloparsecs implies that they are of galactic dimensions and places them well within our local supergalaxy, three times the distance of the Magellanic Clouds and but a third of the distance to the Andromeda

¹ Proc. Kon. Akad. van Wetenschappen, Amsterdam, 1938.