Peter Glob, The Bog People (London: Faber and Faber, 1969).

II The Grauballe Man

Barely two years had elapsed since the discovery of the Tollund man when I was called out again to another bog find of the same sort. This time it was in Nebelgård Fen, a little over two-thirds of a mile south of the village of Grauballe and some eleven miles east of Tollund. On Saturday, 26 April, 1952, peat-cutters from Grauballe came upon a well-preserved body. Happily this occurred in a locality where everyone knew whom to go to when anything notable was turned up in the soil or found in a bog—the doctor living in Aidt, Ulrich Balslev. Dr Balslev had spent the whole of his working life in this part of Central Jutland, where he was also known as an antiquarian. He at once passed the news of the discovery on to the Museum of Prehistory at Aarhus and from there it was passed on to me. I went out the next day, early on a Sunday morning. The bog lay in the bright, slanting morning light, the dew-drops sparkling like millions of diamonds. A large crowd of the local inhabitants had already gathered. As it was Sunday they had time off from their work on the land. They were tightly grouped in a ring around a dark-coloured human head, with a tuft of short-cropped hair, which stuck up clear of the dark brown peat. Part of the neck and shoulders was also exposed. We were clearly face to face once again with one of the bog people.

The peat-cutters had worked very close to the body both at the head and along its sides. Consequently, it did not take

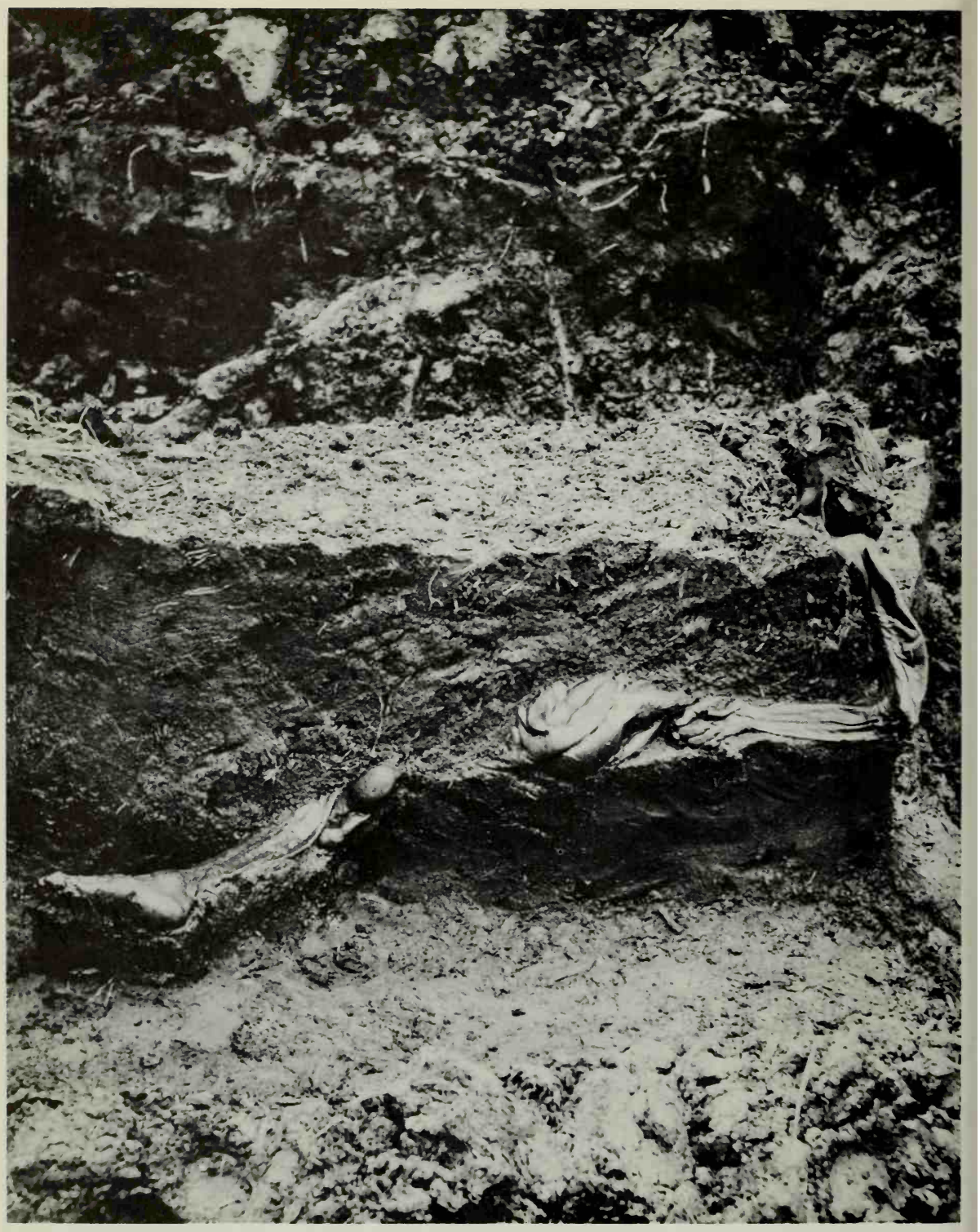
9 The first picture of the Grauballe man

long to cut away enough of the peat to reveal the bog man's posture and how he lay in relation to the surrounding peat layers, a factor of great importance in determining the period to which he belonged.

It could be seen at once that he lay in an excavation in a very old peat-layer. A soft light-coloured layer of sphagnum moss extended both under and over the body, and showed the line of this excavation, even though its full extent could no longer be established, as its edges had already been dug away on three sides. Well over three feet of the overlying peat had been dug away in that same year. The overlying layer had, however, been much thicker originally. Centuries of peat-cutting, indicated by a sort of honeycombing of the surrounding peat strata, had reduced it, and it had gone to feed the fires of the neighbouring houses and farms.

The Iron Age man lay slightly aslant in the peat, with the head and upper part of the body raised, resting on the bottom of the old excavation. His head lay to the north and his legs to the south. It could be seen already that he lay on his chest, with the left leg extended and the right arm and leg bent. The peat-cutters had completely exposed the head, but in doing so had damaged it to some extent. It had also been affected by the weight of the peat that had pressed down on it for centuries. In spite of all this it serves, like the head of the Tollund man, to give an impression of how this man looked on the threshold of death, many years ago. This time the effect is not one of tranquillity but of pain and terror. The puckered forehead, the eyes, the mouth and the twisted posture all express it. The circumstances that led to his death were probably not the same as in the case of the Tollund man.

When all the necessary observations had been made on the spot a large flat sheet of tin, which had been used for roofing at a nearby farm, was driven into the peat from the side, so that the dead man could be lifted from his damp bed in one piece with the block of peat that still surrounded him. The load was heavy and many of the onlookers had to give a hand before the great block could be lifted on to the floor of a



10 The Grauballe man still embedded in the peat

lorry. It was taken at once to the conservation workshops of the Museum of Prehistory at Aarhus. These workshops were opened some time after the Tollund man had been discovered; otherwise he would have been taken there too. When we had planned the new workshops, however, we had made allowance for future discoveries of this sort, and had had wide emergency doors put in at one end of the building, which might be opened in special circumstances. They were used for the first time that Sunday afternoon when the Grauballe man was taken into the Museum, now his permanent home.

News of the sensational discovery and of the dead man's exceptional state of preservation spread like wildfire. Thousands of people wanted to see the Grauballe man, and after preliminary examination he was placed on exhibition for some days. Long lines of people waited several hours in the queue to see this Iron Age man, almost two thousand years old. Soon, however, his scientific examination had to be resumed.

When the investigation was continued no trace was found of clothing or any object which might have accompanied the naked male body to its resting place in the bog. Garments of skin or of woollen fabric, such as are known from comparable finds, would have been preserved. Linen or other cloth woven from vegetable fibres might have totally disappeared, but, owing to the pressure of the overlying mass of peat, it would probably have left its imprint on the dead man's skin, which was smooth and well preserved almost everywhere. No trace of linen-weave marks was seen. We are forced to the conclusion that this Iron Age man was as naked as the day he was born during the centuries he lay in his bog grave.

There was thus nothing in particular to provide a firm date for the find, only the circumstances of the find itself. These were those of comparable bog finds which could be dated to the earlier Iron Age, the eight centuries between the end of the Bronze Age and the beginning of the late Iron Age—centuries that fall equally to either side of the birth of Christ. It is now possible in archaeology to use a variety of scientific

techniques for dating purposes. One technique relies upon the identification of the flora of the locality at the time when the man was placed in the bog, so that the climatic phase to which the discovery belongs may be deduced. Climate changed frequently in past millennia, and the flora changed with it. The pollen grains of plants and trees present in the different layers of the bog have to be identified for this method, which is known as pollen-analysis. A second method, relying on modern atomic physics, depends on the measurement of radio-activity, and is known as the carbon-14 method, since it is concerned with radio-active carbon with the atomic weight of 14 (C-14).

Pollen grains, though microscopic, are preserved in peat bogs in a remarkable manner for hundreds and even thousands of years. Since the pollen of every plant has its own special form, it is possible with the microscope to establish what plants were growing at different points in time. The distinct layers in peat-bogs thus become, as it were, the pages of a great picture-book illustrating the changing flora of the land through the ages. An exhaustive geological-botanical study of the Nebelgård Fen was accordingly undertaken by Dr Svend Jørgensen. We can now visualize the bog and its surrounding landscape at the moment when the Iron Age man was deposited in its depths. Dr Jørgensen's investigation included the stratum represented by the block of peat in which the Grauballe man's body was still encased.

The bog lay then as it does today in a saucer-like depression in hilly ground. It was covered with a scrub of birch, willow, mountain ash and alder buckthorn, the vegetation still predominant when the peat was last cut there. Its surface was honeycombed with old and new peat cuttings partially overgrown with marsh cinquefoil and cranberry. Bog whortleberry flourished on the dry banks around it. The Grauballe man was deposited in a small peat-cutting which was not fresh at the time but overgrown. That peat was dug here in antiquity must have been due to scarcity of fuel. The surroundings had been cleared of woodland, which had only

11 The bog in which the Grauballe man was found

survived in pockets and on precipitous slopes. Oak predominated, while beech, a newcomer in the Iron Age forests, occurred only occasionally, as did lime, ash, elm, fir and alder. Hazel and hawthorn grew at the edges of the forest. Hop was common and the forest floor was carpeted with anemones, dog's mercury, and four-leaved clover. Bracken formed an undergrowth in the glades.

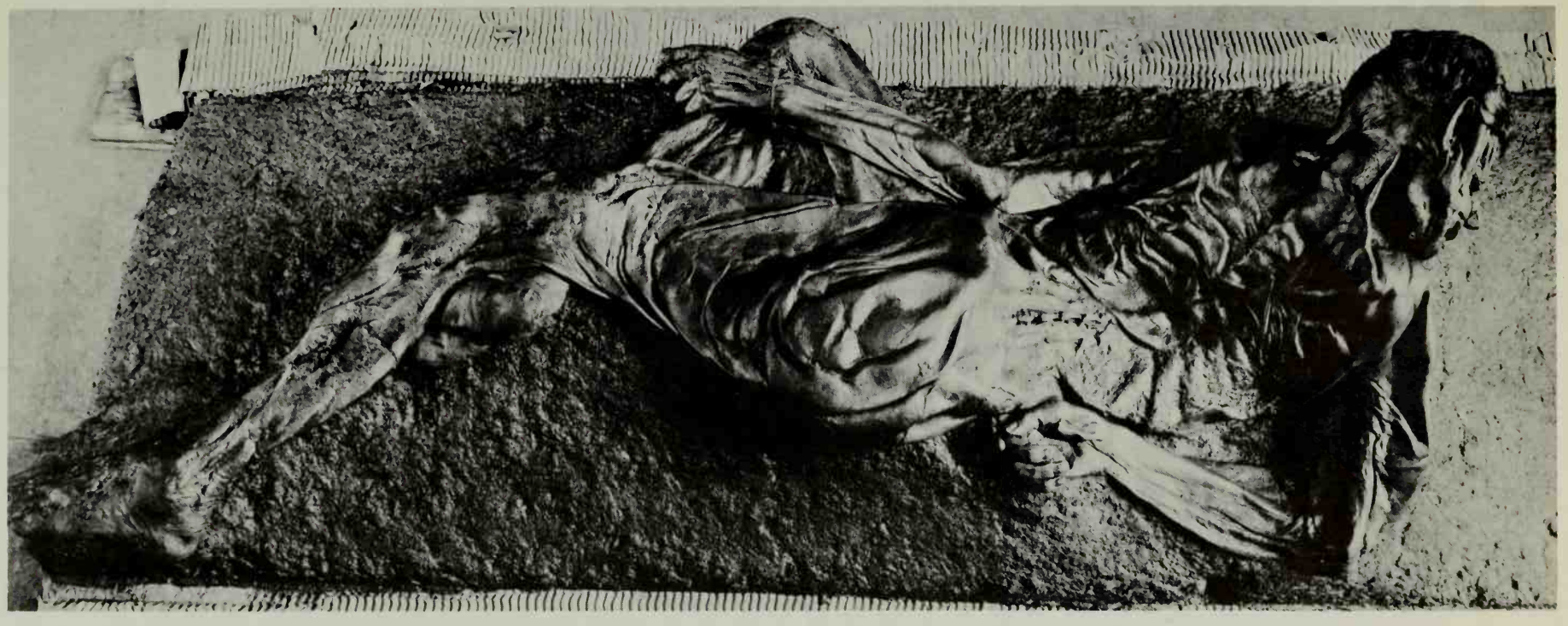
The bog itself was very small and circular with a diameter of some sixty yards, and surrounded by hills that sloped evenly towards its banks. The Grauballe man was found on the south side of the bog about thirty-five yards out from firm ground. Bogs of this type are known as 'cauldron bogs', and it is in just such small cauldron bogs that a long series of the most significant of ancient bog finds have come to light. We will only mention here the *lurs*, those splendid Bronze Age wind instruments, which have been found, in one or more pairs, in such bogs; and, for the early Iron Age, the great silver cauldron from Gunderstrup, with representations of gods and goddesses, religious processions, human sacrifice and contests, which will be discussed later. In both the Bronze and Iron Ages bogs were sacred places at which many religious ceremonies—traces of which we now find in sacrificial deposits—took place.

On the open ground around the bog there were small fields of barley and rye, the same crops as are cultivated there today. Many weeds grew amongst the grain, including knotweed, goosefoot, black nightshade, corn spurrey, field cow-white and hair-grass. There were large areas of common or heathland which had probably been previously cultivated, but abandoned when the soil had become too impoverished to grow corn, i.e. wheat, barley and rye. A mixed flora of grasses, white and red clover, ribwort, sheep's sorrel, sheep's bit, birdsfoot, trefoil and heather grew on the common. Heather already covered the extensive heathlands of Central Jutland in the Early Iron Age. This flora is that of the centuries that succeeded the birth of Christ, known as the Roman Iron Age because of the strong influences from the great

Roman Empire then apparent in the northern lands. It is in this period, between the year of our Lord's birth and A.D. 400 that the Grauballe man must have been deposited in the bog.

This dating, by means of pollen analysis, agrees exactly with a carbon-14 dating obtained by Henrik Tauber in the carbon-14 laboratory of the National Museum. For purposes of carbon-14 dating, body tissues consisting of the liver and muscle were removed from the Grauballe man before conservation was begun. The radio-activity of these portions of the body was counted in a special type of geiger-counter known as a proportional gas counter, and they were found to contain 81.5 per cent of the carbon-14 content of organisms now living. All living things contain a constant quantity of this radio-active carbon as a result of cosmic radiation from outer space, which produces the radio-active carbon dioxide absorbed by all green plants and by sea-water. From these sources it passes into men and animals, which in consequence become slightly radio-active, a process which only ceases when death occurs. As this carbon content diminishes after death in accordance with very precise rules, it was possible to calculate in the laboratory the time of the Grauballe man's death. Between 1540 and 1740 years had elapsed since he died. This places the date of his death in the final phase of the Roman Iron Age, somewhere between A.D. 210 and 410. A margin of error of plus or minus one hundred years had to be allowed in this calculation on either side of the year A.D. 310. As we shall see, the dating is in full accord with what we can deduce from an analysis of the Grauballe man's last meal, which was still present in his stomach and intestines.

The brief exhibition of the Iron Age man was seen by thousands of people, and resulted in many requests for similar exhibitions in different places. When it was over a series of specialists got down to the investigation proper. A professor of forensic medicine, Professor Willy Munck, carried out the first examination of the Grauballe man as he still lay in the position in which he had been found in the bog. The head, like the rest of the body, was somewhat flattened by the over-



12 *and* 13 The Grauballe man after excavation

lying peat, which had pressed on the dead man with its full weight after the water had been pumped out of the bog in preparation for peat-cutting. The skin was a uniform dark brown and as firm as if it had been tanned. This was due to the preservative properties of the bog water, which had from the outset counteracted the various processes of dissolution that set in after death. The hair was found to be preserved on the crown and left side of the head. It was up to about two and a half inches in length and red-brown in colour. However, this was not its original colour, but, like the colour of the skin, was the result of the action of the bog-water. Investigation of the hair seemed to show that it had been dark. Eyebrows were not visible, but there were isolated hairs of the beard on the upper lip and a few more on the chin. They varied in length from one eighth of an inch to almost two fifths of an inch. The eyes, which were slightly screwed up, still contained the eye-balls, and although it was not possible to decide what colour the irises had been, they were most probably fairly dark. Investigation of the bones, which had become soft through decalcification, suggested that they had been intact at the time of death. A fracture of the left femur and tibia, and some damage to the face, must therefore have occurred after death. There could scarcely be any doubt as to the cause of death. A long cut ran round the front of the neck practically from ear to ear, so deep that the gullet was completely severed. The wound was evidently made with several strokes by another person; the direction and appearance of the cuts showed that they could not have been self-inflicted, nor could they have been made after death. As there were no traces on the throat of cord or pressure marks that might have been caused by hanging or strangulation, the cutting of the throat was evidently the cause of death.

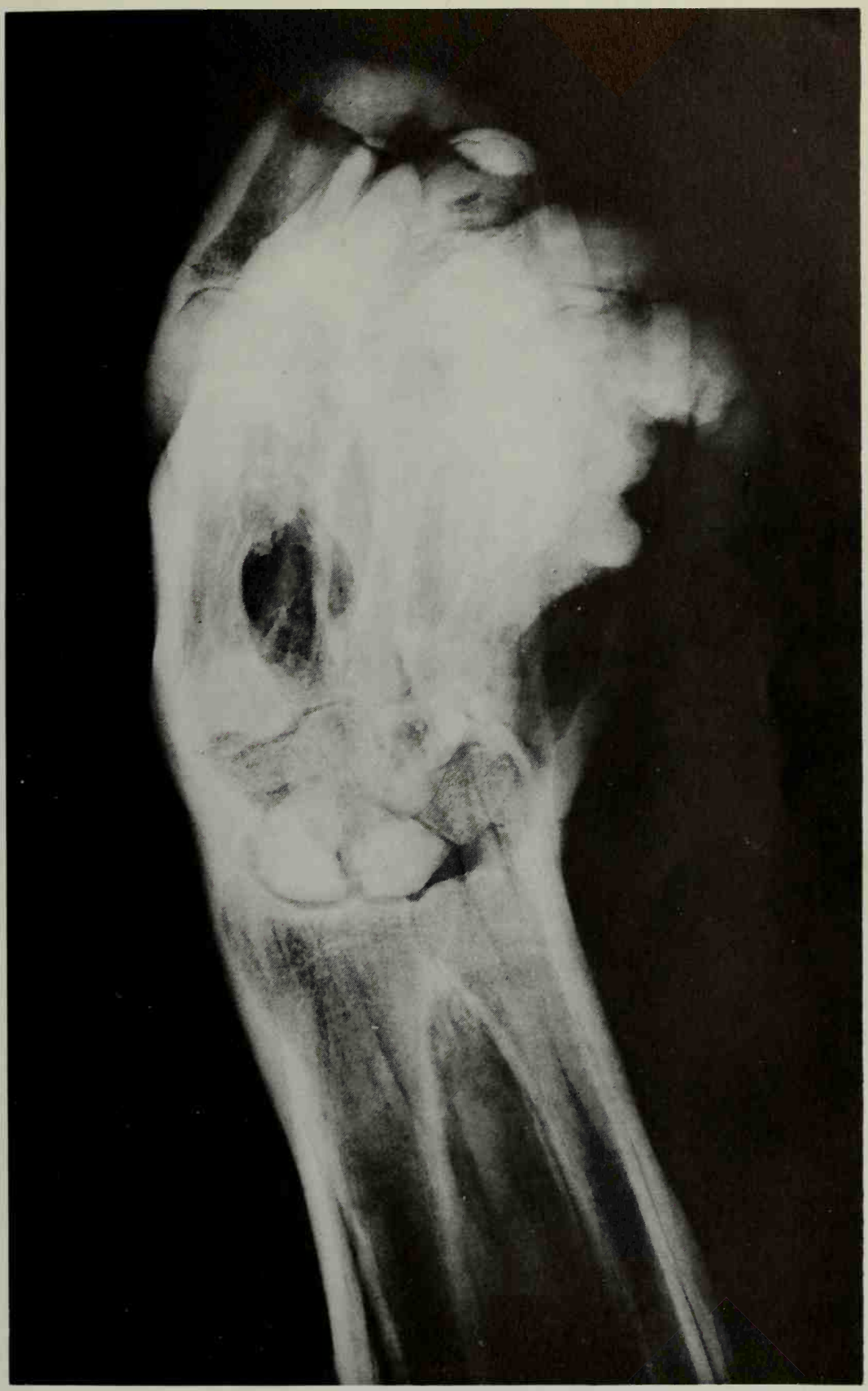
Whether the Grauballe man had been knocked unconscious before his throat was cut could not be established. Radiographs taken by Professor Carl Krebs and Dr Erling Ratjen did indeed reveal a fracture of the skull in the region of the upper temple, caused by a blunt instrument, which might

suggest a direct blow; but it was no longer possible to determine whether this injury, and also an oblique fracture of the left shin, had been sustained before or after death. However, the radiographic examination showed that incipient rheumatoid arthritis had set in in the spinal column, in the region of the chest. This disease does not usually develop before the thirtieth year, so that an approximate minimum age of thirty is set for the dead man, and this is confirmed by the condition of his teeth. There were no other signs of any illness. Microscopic examination of various tissues, and internal examination in which the lungs and liver were scrutinized, led to no conclusions. In the process of dissection a flat body was revealed in the scrotum—presumably the testicles.

Radiography of the head showed the brain to be remarkably well preserved though a little shrunken. The two halves of the brain can be clearly seen in the radiographs and its convolutions are strongly suggested. The calcium content of the skull had undergone a great change in the bog, but the radiographs still reveal its fine net-like internal structure bounded by the shadow of the surrounding skin.

The study of the Grauballe man's beautifully preserved feet and hands was entrusted to the police laboratory at Aarhus, and carried out by two assistants in the criminology department, C. H. Vogelius Andersen and H. C. Andersen. In their report they describe their astonishment when they looked through magnifying glasses at the Grauballe man's right hand and found that the line-patterns, on part at least of this hand, were clearer than those on their own hands. They confess that their first reaction to the idea that the body was many centuries old was accordingly one of scepticism. Later they realized that they had before them some of the oldest patterns actually preserved in human skin. Like his fingerprints, the lines on the soles of the Grauballe man's feet were as sharp as when they were formed in the embryo, more than one and a half thousand years ago. It was thus possible to take the prints of several of his fingers and of his right foot as well. They would have been quite sufficient to identify him, had he been a modern man and the prints filed in the card index of

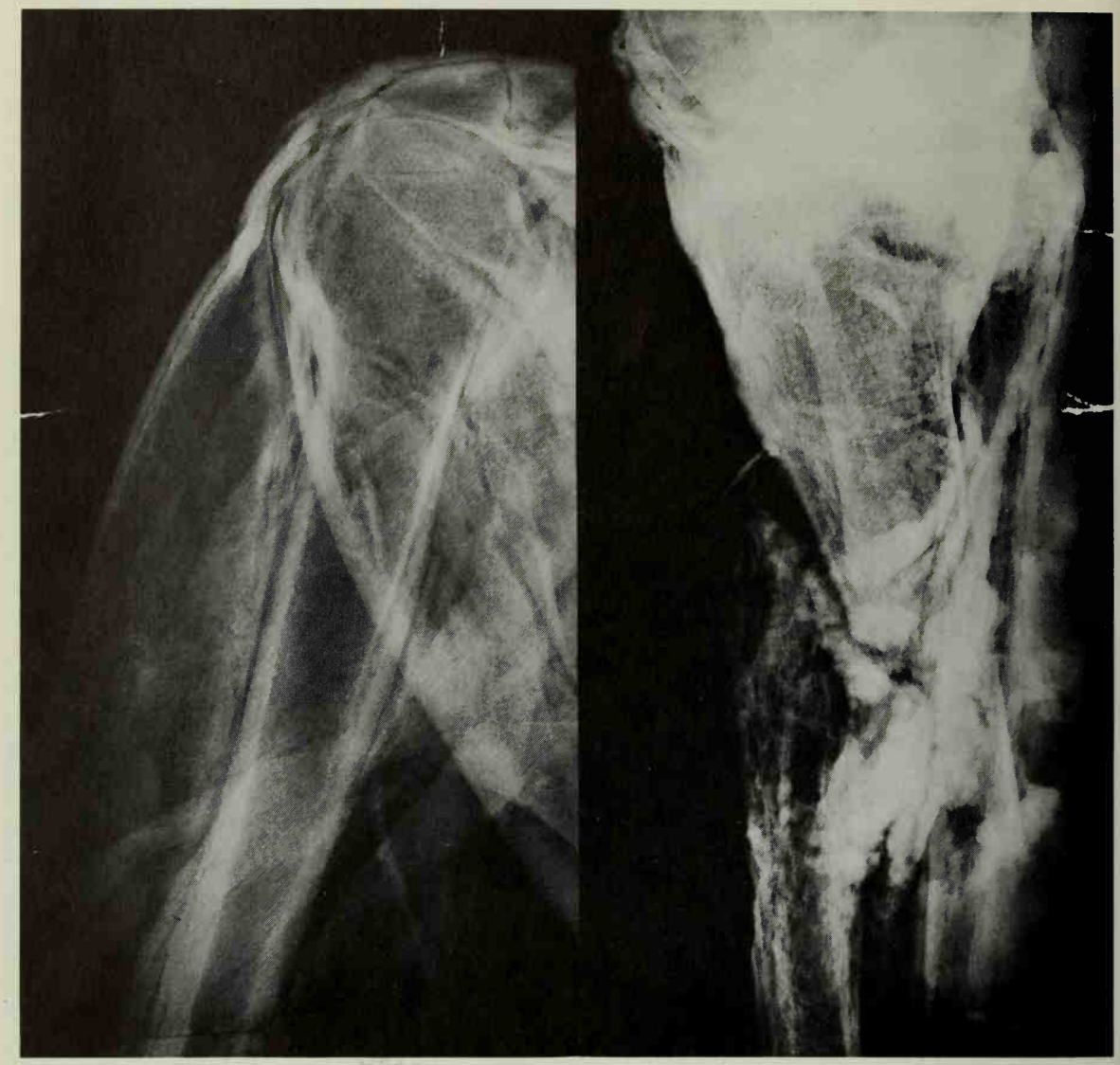
14 The Grauballe man's right hand



15 A radiograph of the right hand

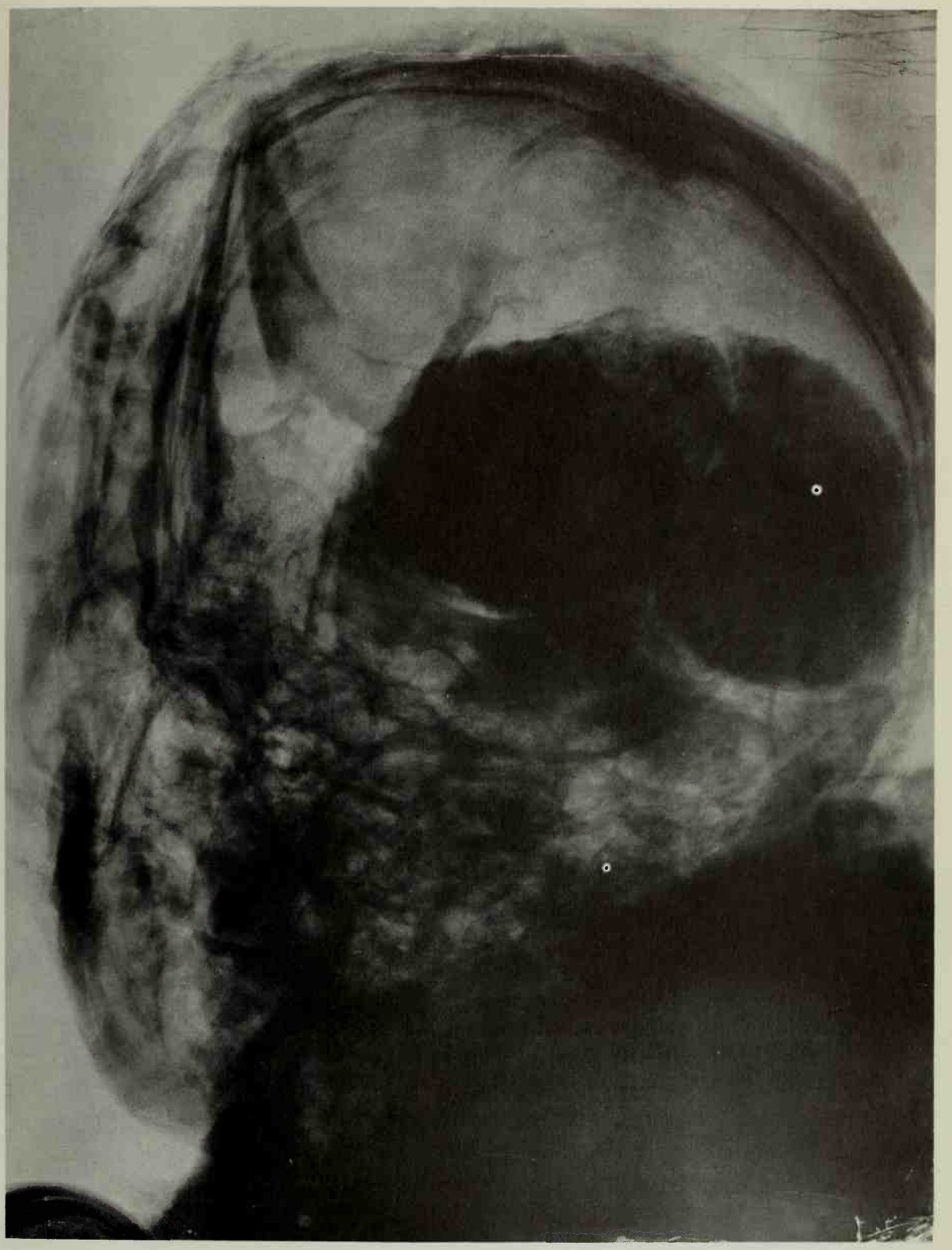
16 (*left*) The Grauballe man's foot

17 (*above*) Its sole



18a, b Radiographs of the Grauballe man's right shoulder-joint, and knee and shin-bone

19 The Grauballe man's finger prints



20 Radiograph of the Grauballe man's head

the Criminal Investigation Department. The pattern of the right thumb could be immediately classified as a whorl-pattern, a so-called double-curve pattern, while that of the index finger of the right hand showed an ulnar loop pattern. These two types occur in 11.2 per cent and 68.3 per cent respectively of the present-day Danish male population. The condition of the skin-lines on the hand made it possible to infer that the Grauballe man had never had to do any heavy or rough manual work.

The head had been the first thing to be encountered by the peat cutters and, as already noted, it had sustained some damage. This extended to the teeth, some of which had been driven into the mouth cavity. The teeth were examined by the Director of the Vendsyssel Historical Museum, and by two dental surgeons from Aarhus, Dr Holger Friis and Dr Warrer. Seven teeth were still in position in the upper jaw, and five in the lower, but open sockets for another fourteen teeth were clearly visible, and nine of the teeth were lying loose in various parts of the mouth. The teeth were very small and showed heavy wear and some signs of decay. One tooth had been lost so long before death that its socket had closed up. Several others showed inflammation of the roots, or had holes, which at one time or another must have caused the Grauballe man agonizing toothache. One bad tooth had worked out in such a manner as to interfere with mastication. The wisdom teeth had not come through.

The Grauballe man's last meal was removed from the digestive canal and examined by the palaeobotanist, Dr Hans Helbaek. The bad state of the teeth suggested that the man had not lived exclusively on the type of vegetable diet that this meal represented. The meal had a volume of 610 cubic centimetres, at least double the amount which had remained in the stomach of the Tollund man. It must have been eaten immediately before death. It consisted of a gruel even more mixed in its seed content than the gruel eaten by the Tollund man. No less than sixty-three different varieties of grain were represented in all. Over and above the varieties already named

in the case of the Tollund man, remains of the following, amongst others, were found: clover, spelt rye, Yorkshire fog, rye-grass, goosefoot, buttercup, lady's mantle, black nightshade, yarrow, wild camomile, and smooth hawksbeard. Many small bone fragments and some mammalian hairs were also found in the stomach, indicating that the soup or gruel, or whatever it may have been, had also contained meat. The bone fragments, however, could not be identified, nor the animal from which the hairs had come. Quite possibly both had somehow got into the grain supply and so had been included in the meal by chance. We are therefore perhaps justified in saying that the Grauballe man's last meal, like that of the Tollund man, and that of the Iron Age man from Borre Fen, of whom we will be speaking later, was entirely vegetarian (see pp. 32–3 and 91).

In each of these last meals no trace was found of summer or autumn fruits, such as strawberries, blackberries, raspberries, apples or hips: nor was there any trace of greenstuffs. There are thus grounds for thinking that all three men met their deaths in winter or early spring, before everything had come into leaf. From this we may conjecture that the deaths took place at the time of the mid-winter celebrations whose purpose was to hasten the coming of spring. It was on just such occasions that bloody human sacrifices reached a peak in the Iron Age.

All in all, there is less reason for thinking that the Iron Age people were vegetarians than there is for the idea that men chosen for sacrifice were given a special meal, made up of the seeds of wild and cultivated plants, before being consecrated, through death, to the deities who controlled the earth's increase (more will be said about these deities later). It is clear, on the one hand, that the 'daily bread' of the Iron Age population must have been blended with a great many seeds from wild plants, but on the other hand, as the investigation of the Grauballe man's teeth suggested, it does seem that their diet was not exclusively vegetarian.

When the investigation of the Grauballe man was con-

cluded the question of preservation arose. This had been discussed at length in the Museum of Prehistory at Aarhus, and it was unanimously agreed that the whole of this Iron Age man should be preserved for posterity, and not merely, as in the case of the Tollund man, his head. The task was given to an officer of the Museum, Mr G. Lange-Kornbak, and carried through by him with great skill. The first problem was to devise some means of ensuring that, at the end of the lengthy process of treatment envisaged, the dead man would still have the same bodily appearance and posture as he had when uncovered in the bog. Accordingly, a plaster cast was taken of the man just as he was found. In this way his authentic appearance was recorded, both with his future exhibition in mind and at the same time to provide a necessary check against possible shrinkage in the course of conservation. The cast was taken from the underside of the body, which was given a coating of glycerin so that the plaster should not stick.

In the post-mortem examination of the Grauballe man a section through his skin showed that it had a light-coloured core but dark inner and outer surfaces, indicating that the process of preservation in the bog had been a tanning process, begun by nature. The solution to the conservation problem would be to complete the process. All the relevant problems in tanning technique were gone into afresh with the best experts in this field. As a result a tanning process, known to the trade as 'pit-tanning' was begun on 1 November 1952. In this process oak bark is used. The tanning which had been in progress in the bog for more than fifteen hundred years was not completed in the laboratory until 1 June 1954, and so the final stage took just over one and a half years. Some 1,825 lbs. of oak bark were used, and the solution had to be renewed three times. The actual tanning took place in an oak trough specially designed for the purpose; the metal fittings which held it together were all on the outside so that the tannic acid would not be contaminated by contact with metal.

When the Grauballe man was taken out after his prolonged

immersion in tannic acid, the bark-slime washed off and the body cleaned, his form and outward colour were exactly the same as they had been at the beginning of the process. A section through the skin, however, showed a uniform brown indicating that the process of tanning was now complete.

The final treatment was a month's bath in 10 per cent Turkish red oil in distilled water followed by drying in air, in the course of which gradual impregnation with glycerin, lanolin and cod liver oil was carried out. Finally, collodion (cellodel) was injected into those parts of the body which had best retained their shape. The thorough-going treatment to which an Iron Age man had been subjected was now stabilized.

Since then the Grauballe man has been exhibited in the Museum of Prehistory at Aarhus, where he lies in exactly the posture in which he was found in the peat-bog. We can say this because the surface on which he rests is the plaster cast taken from his body before conservation began. The cast also showed that hardly any shrinkage had occurred in the long process. We can now see the dead man in a glass case in a special room in the Museum, and encounter one of the Iron Age people almost as he was nearly two thousand years ago, when he was deposited in the bog after ritual sacrifice.

* * * * *

Was it really possible that this man, discovered in the peat-bog at Grauballe, and exhibited in the Museum of Prehistory at Aarhus, was an Iron Age man? Could the scholars possibly be right when they said that the bog had preserved him for two thousand years? These questions occurred to many of the twenty thousand who saw the Grauballe man in the brief week for which he was exhibited before the process of final conservation was begun. All of a sudden scepticism became general and spread throughout the country, encouraged by a big Jutland newspaper and a lot of aping chatter in the rest of the Press.

The alarm was sounded by an old farmer's wife in the

Grauballe district. She reckoned that the dead man was 'Red Christian', a peat cutter who had disappeared from the district without trace in 1887, or the year following. A newspaper announced that the farmer's wife had known Red Christian, had been a playmate of his for many years as a child, and, confronted by the bog man, had exclaimed 'That's him all right!' She recognized his features and traces of the consumption from which he had suffered. Letters to the metropolitan newspapers showed that the Jutland capital was split into two factions, those for the scientists and those against. Readers were told that sensational new evidence had come to hand in the last few days which seemed to establish that the 'prehistoric man' was in fact one and the same person as the drunkard, 'Red Christian', who must have fallen into the bog when half-seas-over, nearly seventy years earlier, and been drowned. The green light was thus given for the discomfiture of Science—represented by the writer—which was attempting to pull the wool over the public's eyes. Any fool could see that a man with hair, finger-nails and stubble on his chin, and as well preserved as this one undoubtedly was, could not possibly be as old as they were trying to make the credulous believe. 'Reliable witnesses' were produced without difficulty. A serious attempt was made to prove Christian's identity with the bog man, and a Jutland newspaper came out with the three-column headline: 'Several recall that Red Christian disappeared at the spot where the Grauballe man was found'. There were pictures of a pretty little white-washed cottage with a thatched roof in which Red Christian had lived.

One of the oldest inhabitants of Grauballe was produced to tell of Red Christian's last visit to the inn at Svostrup, after a poaching expedition. This was an old man of eighty-four, who was credited with being an expert because he was very interested in archaeology and had handed in a number of antiquities to the Silkeborg Museum. It was publicly stated that 'quite obviously, notwithstanding his caution', he was of the same opinion as the farmer's wife who had first recognized Red Christian.

More was to come, however, in the battle against the experts. This time it was an ignorant employee of a Jutland local museum who was made the spear-point of the 'pig's phalanx'* with the headlines: 'Expert queries the age of the Grauballe man', . . . 'leaps to the rescue of the local folk in their mistrust of the Grauballe man's antiquity'. His argument? 'The Grauballe man's pale colour made me sceptical at the time, and I am not convinced even now of the antiquity of this famous find.'

Gossip-writers in daily papers throughout the country joined in the fun with a good deal of witty versification; I will only quote one example:

They still remember him well in the parish,
But how famous he's now become!
Yet we have to admit his age has been
Considerably overdone.
Yes, Glob must have made a big mistake
When he made his diagnosis,
And now the folk who know what's what
Want to speak out, and tell what they know.
There's monkey business somewhere†—
Glob must admit it's so.

While the controversy raged the scholars went calmly on with their investigations. The public were looking in particular to a dating from the Carbon-14 laboratory at the National Museum, but this had to wait for various adjustments, as nuclear explosions in 1956 had raised the general level of radioactivity in the atmosphere all over the world.

* svinefylking (literally a 'gathering of pigs'): wedge-shaped battle-formation in an army.

† 'ugler i mosen', literally 'owls in the bog' (originally 'ulver (wolves) i mosen)—an untranslatable nuance. The expression means 'there's been a snag somewhere'. Containing as it does the word 'mose' (bog) its use is particularly apposite in this context. (Tr)

Eventually the dating was issued and announced by the Press in banner headlines, one of which read:

RED CHRISTIAN KNOCKED OUT BY ATOMS.
RADIO-ACTIVE ISOTOPES PROVE THAT
THE GRAUBALLE MAN IS 1650 YEARS OLD.

The bloodless battle was over. People's natural resistance to the incredible circumstances that a dead human being could be preserved unchanged for centuries, 'by the well-nigh miraculous power of iron-containing bog water', was overcome. A man found in a bog had been accepted as a contemporary Jutlander. But he was Early Iron Age man.