species constancy, but that the chemotaxonomic use of alkane patterns had so far met with only moderate success. The acetylenic compounds also present taxonomic difficulties, occurring as they do in such disparate groups as the fungi Polyporaceae and the highly advanced Compositae. Dr. J. D. Bu'Lock (Manchester) pointed out that some of the anomalous aspects of acetylene distribution within the Compositae could be explained by considering biosynthetic pathways, so that more knowledge of biosynthesis is vital in this series. Dr. G. Weissman (Hamburg), in considering the occurrence of terpenoids in plants, also found that biogenetic relationships were of prime importance in understanding distribution patterns. In the final lecture of this session, Prof. T. W. Goodwin (Aberystwyth) mentioned that carotenoids were of considerable systematic importance in lower plants, but were of little significance in the angiosperms since all green leaves contain the same set of major carotenoids. Fruit carotenoids do, however, show interesting variations as they can be divided into four categories, but the interest here is mainly their biosynthetic origin rather than their systematic distribution.

The first paper in the fourth and final session of the symposium was given by Dr. E. Percival (London). In surveying the vast and complex field of polysaccharide chemistry, she pointed especially to similarities and differences in structure between algal and higher plant acidic polysaccharides. She concluded that generic and species differences will only emerge when the fine details of these macromolecules have been elucidated. Prof. A. J. Kjaer (Copenhagen) also had a large area to cover, since he dealt with sulphur-containing amino-acids and alkaloids, thiols, simple sulphides and polysulphides. His main theme, however, was the distribution of the isothiocyanate-producing glucosides, which show a number of interesting correlations with taxonomy. In a joint paper, Dr. T. Swain (Cambridge) dealt with the chemistry and Dr. E. C. Bate-Smith (Cambridge) the distribution of a class of substances including aucubin and asperuloside, now known collectively as iridoids. It was pleasing to find that their distribution in families in the order Tubiflorae fits in particularly well with the recently published twelfth edition of Engler's *Syllabus of Plant Families*. Finally, Dr. Ruijgrok (Leiden) outlined the distribution of the lactone ranunculin in the Ranunculaceae and correlated its occurrence with those of cyanogenetic compounds, which are also present in this family. This talk concluded a very successful meeting, in which both chemists and taxonomists contributed to discussions of the many papers. It is planned to publish the proceedings in full later this year.

HOT-LABORATORY WORKING METHODS

AN international symposium on working methods in high-activity hot laboratories, organized by the European Nuclear Energy Agency in collaboration with Euratom, was held at the French Centre d'Etudes Nucléaires in Grenoble during June 14–18. The symposium provided a forum for discussion, by some 130 experts from hot laboratories in the nuclear research centres of 15 European and American countries of OECD and Euratom, of specialized methods and equipment for handling radioactive materials with activities greater than 1,000 curies.

The main purpose of hot laboratories, of course, is to permit experimental work on these highly radioactive materials without endangering the personnel carrying out the work. Although in the past such experiments have usually been related to research and development programmes, there is now a growing amount of purely routine work—such as regular analysis of irradiated fuel samples to determine burn-up—for which comparatively simple standardized equipment could often replace the complex and unnecessarily flexible apparatus of the pure research laboratory.

Equipment for both purposes was discussed at Grenoble and it became clear, even for complex research purposes, that laboratory experts preferred simple and economical rather than highly sophisticated equipment provided only that it would do its job in a safe and efficient manner.

Throughout the symposium there was repeated emphasis on the need for designers of hot-laboratory facilities to work more closely with the users, so avoiding the need to make an installation unnecessarily flexible through lack of foreknowledge of its purpose. Improved liaison was also often possible between the hot-laboratory operator and his "client"—the reactor operator or research engineer—so that the one could know as accurately as possible what the other wanted him to do. The earlier this liaison took place, the less complicated the hot-laboratory equipment might well be.

On the other hand, a too-rigid limitation of use could lead to considerable expense when, as was often the case, advancing technology required modifications to what had become standard test procedures. Economics and flexibility were in fact often in opposition, and an efficient compromise was not always easy to find.

Although the symposium was concerned with hot laboratories for all purposes, most of the papers presented dealt with installations for work on irradiated fuels, and several stressed the problems to be expected from the advancement of fast reactors. Monsieur André Valentin (Commissariat à l'Energie Atomique, Fontenay-aux-Roses, France), in summing up the situation, mentioned that such reactors would undoubtedly operate to very high fuel burn-ups—for example, it was generally thought that plutonium carbide fuels would not be interesting unless taken to burn-ups greater than 50,000 MW days/tonne. This was likely to lead to considerable and important developments in hot-laboratory methods.

Mr. K. R. Ferguson (Argonne National Laboratory), in reviewing present techniques in the United States, stressed the value of experience in building up these techniques. Such experience enabled consistently reliable results to be obtained from comparatively simple apparatus having the highest standards of safety and protection, while less-experienced operators would feel impelled to use more complex equipment which was certainly less economical and could also be less reliable.

A discussion of various types of 'enclosure' directed attention to the advantages of incorporating all or most of the remote handling operations of a particular process within a single complex of interconnected containments. By thus reducing the frequency of transfer across the containment barrier, both containment reliability and operating efficiency could be greatly increased. Such cell complexes are to be used at the Fuel Recycle Pilot Plant at the Hanford Laboratories, the Oak Ridge Transuranium Laboratory, the Oak Ridge Thorium-uranium Recycle Facility, and the Alpha-Gamma Metallurgical Hot Cell at Argonne.

Concerning the use of 'boxes' within hot cells, it was generally agreed that these were necessary for handling materials above a certain activity (for example, above a total alpha count of 10^{15}/min was suggested) to avoid excessive time loss in decontamination and to provide added assurance of safety. Boxes were also needed to avoid cross-contamination between different materials handled simultaneously in the same laboratory.

There was some discussion on methods and equipment for both individual and general dosimetry, and here again

it appeared that there was scope for closer liaison between the two specializations concerned, namely the radiochemical technology of the hot laboratory and the physico-biological technology of radio-protection. There was at least one suggestion that this matter might be the subject of a future symposium.

It was perhaps not surprising that on most matters considered at Grenoble, the conclusions of the experts from the various countries represented were similar. Indeed in many fields it was clear that standard methods were beginning to be adopted (particularly for non-destructive testing) and that this was leading to the adoption of standardized items of equipment in all laboratories. Participants generally welcomed this trend which doubtless owes its origins to previous international discussions which, if on a less ambitious scale, were none the less the forerunners of the Grenoble Symposium.

The *Proceedings* of the Symposium, including all papers and discussions as well as a directory of high-activity hot laboratories in operation in OECD countries, will be published by ENEA towards the end of September.

MENDEL MEMORIAL BUILDING, HYNČICE

ON June 13, the birthplace of Gregor Mendel at Hynčice, Czechoslovakia, was officially opened to the public and a memorial plaque unveiled to celebrate the occasion.

The house, built by Mendel's father on the site of a former wooden building, has been reconstructed, thanks to the efforts of the Regional Department for the Preservation of Historical Monuments in Ostrava, the District National Council, and the District Museum in Nový Jičín. On the ground floor, the Moravian Museum of Brno has restored the former kitchen and the room where Mendel was born.

The arrangement of the memorial building was, to a great extent, determined by the rooms available. This necessitated dividing them into two parts, representing, on one hand, Mendel's life and, on the other, his scientific activities.

In the first part, Mendel's birth certificate is displayed in the room where he was born in 1822. Other exhibits there record his genealogy, family background, and details of the schools where he obtained his basic education. There are also photographs and documents of the period, testifying to Mendel's entry into the Monastery of Old Brno, his teaching activities at the Brno Secondary School, and finally his election as Abbot in 1868. The final exhibits in this section include the obituary notice issued by the Monastery on the day of his death, and the photograph of the Monastery vault in the Central Cemetery in Brno, where he gained his final resting place.

The second part, which is aimed at acquainting the visitor with Mendel's work and its significance, particularly stresses his interest in natural science. It was this interest which led him, after his theological studies had been completed, to study at the University of Vienna.

Later he returned to Brno where for many years he performed his experiments on the heredity of peas. It was these, now classical experiments, which led to the formulation of his theory of dominant and recessive characters and its publication in 1865. His theory, however, was not recognized until it was publicized by de Vries, Correns and Tschermak at the beginning of the present century. The final documents exhibited in this section indicate the great use which scientific research workers throughout the world have made of Mendel's work.

The official opening of Mendel's birthplace aroused considerable interest among the general public, and at the ceremony Dr. V. Orel, head of the Gregor Mendel Department of Genetics in the Moravian Museum in Brno, gave an inaugural address in which he briefly outlined Mendel's life and explained the significance of his work. He also recalled Mendel's close ties with his family and his native village.

The opening of this memorial building gave Hynčice the chance to inaugurate the official celebrations of the centenary of the publication of Mendel's classic paper, and in this way of paying honour to its most famous son.

LUDMILA MARVANOVÁ

POSITIONS OF THREE COSMIC X-RAY SOURCES IN SCORPIO AND SAGITTARIUS

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WE have determined the positions of three cosmic X-ray sources in the constellations of Scorpio and Sagittarius within uncertainty areas of 1·2–3 square degrees. Positions for these sources were reported earlier by us at the Austin Conference on Relativistic Astrophysics on the basis of a preliminary analysis of the same data[1]. One of these sources is *ScoX*-1, which was first detected by Giacconi *et al.* in 1962 (ref. 2). (Our designations specify the constellation and the order of discovery, for example, *ScoX*-2 for second X-ray source in Scorpio.) The other two, *SgrX*-1 and *ScoX*-2, lie near the galactic plane in the complex of sources the existence of which was reported in a previous publication[3]. We have also located a probable fourth source to within 1° of a segment of a great circle that is almost parallel to and about 4° below the galactic equator. The Kepler supernova remnant *SN* 1604 was scanned and no evidence of an X-ray source at its position was found.

We obtained the data with a rocket that was launched from White Sands, New Mexico, on October 26, 1964, at a sidereal time of 20h 20m, and reached an apogee of 224 km. Above the atmosphere the rocket spun around

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